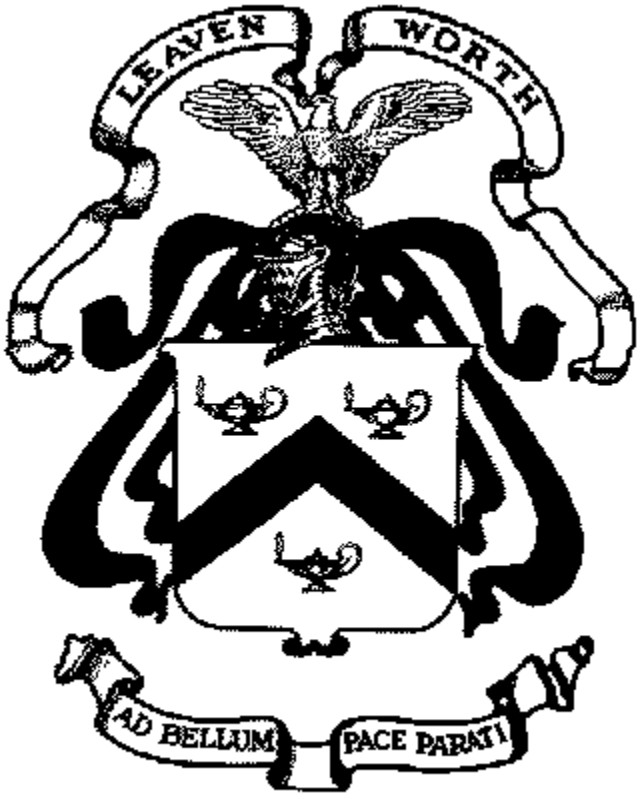
CGSC *ST 4-1*

THEATER SUSTAINMENT

BATTLE BOOK



U.S. ARMY COMMAND AND GENERAL STAFF COLLEGE

FORT LEAVENWORTH, KANSAS

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PREFACE

This publication supports all Command and General Staff Officer's Course (CGSOC) instruction in logistics and sustainment operations for Army ground forces in a Joint environment across the spectrum of conflict. The material is written primarily from the tactical logistician's perspective, focusing at the brigade combat team (BCT) and division level. All applicable sources were consulted to ensure and support doctrinal integrity. Every effort has been made to include emerging doctrine and the flood of changes growing out of transformation, modular force design and experience gained from OIF and OEF. Therefore, some discrepancies are bound to creep into the text. Hopefully these are resolved during the annual review process. Sole responsibility for this student text rests with the Department of Logistics and Resource Operations (DLRO), U.S. Army Command and General Staff College. This publication is available in Command and General Staff Officer Course (CGSOC) student issues (hard copy or CD) and on the CGSC Blackboard master library (electronic version).

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Contents

Page

The June 2013 version of ST 4-1 replaces the January 2013 version of ST4-1.

DISCLAIMER: This ST is just that—a student text. The figures that appear in this document, though derived from official documents, are intended solely for instructional use. This document does not constitute doctrine and should not be interpreted or used as such.

CHAPTER 1

SUSTAINMENT

1-1. GENERAL

For the Army, **sustainment is the provision of logistics, personnel services, and health service support necessary to maintain operations until successful mission completion.** This is accomplished through the integration of national and global resources and ensures that Army forces are physically available and properly equipped, at the right place and time, to support the combatant commander (CCDR) in the conduct of operations.

1-2. PRINCIPLES OF SUSTAINMENT

Sustainment principles are essential to maintaining combat power, enabling strategic and operational reach, and providing Army forces with endurance. Although these principles are independent, they are also interrelated. The principles of logistics are the same as the principles of sustainment.

- **Integration is combining all of the elements of sustainment (tasks, functions, systems, processes, organizations) to operations assuring unity of command and effort.** Army forces integrate sustainment with joint forces and multinational operations to maximize the complementary and reinforcing effects from each Service and national resources.

- **Anticipation is the ability to foresee operational requirements and initiate actions that satisfy a response without waiting for an operations order or fragmentary order**. Sustainment commanders and staffs visualize future operations, identify required support and start the process of acquiring the sustainment that best supports the operation.

- **Responsiveness is the ability to react to changing requirements and respond to meet the needs to maintain support.** Through responsive sustainment, commanders maintain operational focus and pressure, set the tempo of friendly operations to prevent exhaustion, replace ineffective units, and extend operational reach.

- **Simplicity relates to processes and procedures to minimize the complexity of sustainment.** Clarity of tasks, standardized and interoperable procedures, and clearly defined command relationships contribute to simplicity.

- **Economy is providing sustainment resources in an efficient manner to enable a commander to employ all assets to achieve the greatest effect possible.** It is achieved through efficient management and discipline, prioritizing and allocating resources, and capitalizing on joint interdependencies. It can also be achieved by contracting for support or using host nation resources to reduce or eliminate the use of military resources.

- **Survivability** is all aspects of protecting personnel, weapons, and supplies while simultaneously deceiving the enemy (JP 3-34). Survivability consists of a quality or capability of military forces that permits then to avoid or withstand hostile actions or environmental conditions while retaining the ability to fulfill their primary mission. In mitigating risks and minimizing disruptions to sustainment, commanders often must rely on the use of redundant sustainment capabilities and alternative support plans.

- **Continuity is the uninterrupted provision of sustainment across all levels of war.** It is achieved through a system of integrated and focused networks linking sustainment across the levels of war, other Service support capabilities, and to operations. It assures confidence in sustainment allowing commanders' freedom of action, operational reach and prolonged endurance.

- **Improvisation is the ability to adapt sustainment operations to unexpected situations or circumstances affecting a mission.** It includes creating, inventing, arranging, or fabricating what is needed from what is available. The sustainment commander must apply operational art to visualize complex operations and understand what is possible at the tactical level. These skills enable commanders to improvise operational and tactical actions when enemy actions or unexpected events disrupt sustainment operations.

1-3. SUSTAINMENT WARFIGHTING FUNCTION

The sustainment warfighting function (WfF) is related tasks and systems that provide support and services to ensure freedom of action, extend operational reach, and prolong endurance (ADP 3-0). The endurance of Army forces is primarily a function of their sustainment. Sustainment determines the depth and the duration of Army operations. Successful sustainment enables freedom of action by increasing the number of quality of options available to the commander. It is essential to retaining and exploiting the initiative. The sustainment warfighting function consists of three major elements: logistics, personnel services, and health service support.

NOTE: The sustainment WfF definition is from ADP 4-0; however, ADRP 3.0 is the proponent publication for WfFs.

Logistics. *Logistics* is planning and executing of the movement and support of forces. It includes those aspects of military operations that deal with: design and development; acquisition, storage, movement, distribution, maintenance, and disposition of material; acquisition or construction, maintenance, operation, and disposition of facilities; and acquisition or furnishing of services. Explosive ordanance disposal is a function of logistics. However, explosive ordnance disposal (EOD) tasks are discussed under the protection warfighting function. (See FM 3-27 and ATTP 4-32.)

Logistics consists of the following:

- *Supply.* Acquires, manages, receives, stores, and issues all classes of supply required to equip and sustain Army forces. Supply also covers turning in, exchanging and/or disposing of items (FM 10-1).

- *Field services.* Feeds, clothes, and provides personal services for soldiers. Field services include clothing exchange, laundry, shower, textile repair, mortuary affairs (MA), aerial delivery, and food services (FM 10-1).

- *Maintenance.* Preserves materiel in serviceable and operational condition, returns to service, or updates and upgrades its capability (ATTP 4-33).

- *Transportation.* Moves and transfers units, personnel, equipment, and supplies to support operations (FM 55-1).

- *Distribution.* This consists of the synchronization of all elements of the logistical system to provide adequate support (ATTP 4-0.1).

- *Operational Contract Support.* Such support integrates and manages the acquisition, provision, and use of all types of support from commercial sources (ATTP 4-10).

- *General Engineering Support.* General engineering includes those engineering capabilities and activities, other than combat engineering, that modify, maintain, or protect the physical environment. Examples include: the construction, repair, maintenance, and operation of infrastructure, facilities, lines of communication and bases, and terrain modification and repair and selected explosive hazard activities. Engineering provides construction support, real estate planning and acquisition, and real property maintenance responsive to environmental considerations (FM 3-34).[5]

Personnel. *Personnel services* are sustainment functions that man and fund the force, maintain Soldier and Family readiness, promote the moral and ethical values of the nation, and enable the fighting qualities of the Army. Personnel services provide economic power at the operational and tactical levels. Personnel services complement logistics by planning for and coordinating efforts that provide and sustain personnel. Personnel services consist of the following:

- *Human resources support.* Provides all the activities and systems needed to man the force. These activities include personnel accounting; casualty management; essential personnel services; postal operations; and, morale, welfare, and recreation (FM 1-0).

- *Religious support.* Provides religious support to soldiers, family members, and authorized civilians; delivers rites, sacraments, ordinances, spiritual care, religious counseling, spiritual fitness training and assessment, religious worship services; provides advice to the command on matters of religion, morals, morale; and, coordinates with nongovernmental organizations (NGO) and private voluntary organizations, as appropriate (FM 1-05).

- *Financial management operations.* Provides finance and resource management services to commanders. Finance services include pay for vendors, services, accounting, central funding, technical advice, and policy guidance. Resource management services include technical advice to commanders on operational resource management aspects (FM 1-06).

- *Legal support.* Performs operational law duties and provides advice in military justice, international law, administrative law, civil law, claims, and legal assistance to support command, control, and sustaining operations (FM 1-04).

- *Band support.* Provides music to support military operations (ATTP 1-19).

Health Service Support. *Health service support* encompasses all support and services performed, provided, and arranged by the Army Medical Department to promote, improve, conserve, or restore the mental and physical well being of personnel in the Army and, as directed, in other Services, agencies, and organizations (ATTP 4-02). The health service support mission is a part of the sustainment warfighting function. The force health protection mission falls under the protection warfighting function.

[5] See chapter 4, ADRP 4-0, *Sustainment*, July 2012.

Health service support consists of the following medical functions:

- Casualty care, which encompasses a number of Army Medical Department functions, include: organic and area medical support, hospitalization, and dental care (treatment aspects), behavioral health and neuropsychiatric treatment, clinical laboratory services, treatment of chemical, biological, radiological, and nuclear patients.

- Medical evacuation.

- Medical logistics.

1-4. SUSTAINMENT-RELATED TASKS

- *Internment and Resettlement (I/R) Operations I/R operations* are included under the protection warfighting function (WfF) (ADRP 3.0). Although not a major sub-function of the sustainment WFF, I/R are supported by logistics, personnel services, and health service support (HSS). The Army is the DOD executive agent (EA) for all detainee operations. Within the Army, and through the CCDR, the military police (MP) are tasked with coordinating shelter, protection, accountability, and sustainment for detainees. The I/R function addresses MP roles when dealing with detainees, dislocated civilians, and US military prisoners. The MPs support the battlefield commander by relieving him or her of the problem of handling detainees with combat forces.[6] *The theater sustainment command (TSC) is responsible for the overall sustainment of I/R operations.* For additional information, see CALL Handbook 12-21, *Commander's Guide to Supporting Refugees and Internally Displaced Persons*:[7]
  http://usacac.army.mil/cac2/call/docs/12-21/12-21.pdf

1-5. ARMY SUPPORT RELATIONSHIPS

Table 1-1, page 1-7 lists Army support relationships. Army support relationships are not a command authority and are more specific than the joint support relationships. Commanders establish support relationships when subordination of one unit to another is inappropriate. Commanders assign a support relationship when—

- The support is more effective if a commander with the requisite technical and tactical expertise controls the supporting unit rather than the supported commander.

- The echelon of the supporting unit is the same as or higher than that of the supported unit. For example, the supporting unit may be a brigade, and the supported unit may be a battalion. It would be inappropriate for the brigade to be subordinated to the battalion; hence, the echelon uses an Army support relationship.

- The supporting unit supports several units simultaneously. The requirement to set support priorities to allocate resources to supported units exists. Assigning support relationships is one aspect of mission command.

[6] See FM 3-19.1, *Military Police Operations,* and FM 3-19.40, *Internment/Resettlement Operations*.
[7] US Department of the Army, Center for Army Lessons Learned. CALL Handbook 12-21, *Commander's Guide to Supporting Refugees and Internally Displaced Persons* (Fort Leavenworth, KS: CALL, September 2012).

Table 1-1. Army support relationships

If relationship is:	*Then inherent responsibilities:*							
	Have command relationship with:	**May be task-organized by:**	**Receive sustainment from:**	**Are assigned position or an area of operations by:**	**Provide liaison to:**	**Establish/ maintain communications with:**	**Have priorities established by:**	**Can impose on gaining unit further command or support relationship by:**
Direct support[1]	Parent unit	Parent unit	Parent unit	Supported unit	Supported unit	Parent unit; supported unit	Supported unit	See note
Reinforcing	Parent unit	Parent unit	Parent unit	Reinforced unit	Reinforced unit	Parent unit; reinforced unit	Reinforced unit; then parent unit	Not applicable
General support–reinforcing	Parent unit	Parent unit	Parent unit	Parent unit	Reinforced unit and as required by parent unit	Reinforced unit and as required by parent unit	Parent unit; then reinforced unit	Not applicable
General support	Parent unit	Parent unit	Parent unit	Parent unit	As required by parent unit	As required by parent unit	Parent unit	Not applicable

Note: [1] Commanders of units in direct support may further assign support relationships between their subordinate units and elements of the supported unit after coordination with the supported commander.

Army support relationships allow supporting commanders to employ their units' capabilities to achieve results required by supported commanders. Support relationships are graduated from an exclusive supported and supporting relationship between two units—as in direct support—to a broad level of support extended to all units under the control of the higher headquarters—as in general support. Support relationships do not alter administrative control. Commanders specify and change support relationships through task organization.

1-6. SUSTAINMENT OPERATIONS

*Sustainment oper*ators and planners must understand the commander's plan and intent to ensure effective support. They must know—

- The supported units' missions.
- The times missions are to occur.
- The end states.
- The operational concepts for each mission.
- The timing of critical events.

After analyzing the concept of operations, sustainment planners must be able to accurately predict support requirements. They determine—

- What type of support is required.
- What quantity of support is required.
- What the proper priority of support is, by type and by unit.

Using these requirements, sustainment planners must assess the support capabilities to determine—

- What the impact or influence of logistics will be on the mission.
- What sustainment resources are available (organic, lateral, and higher headquarters).
- What the priority of *support is, by type and by unit.*
- *When the sustainment* resources can be available to the maneuver units.
- How sustainment resources will be made available.
- Where the sustainment resources are.

Based on this analysis, sustainment plans are developed that apply resources against requirements.

1-7. OFFENSIVE OPERATIONS

If offensive momentum is not maintained, the enemy may recover from the shock of the first assault to mount a successful counterattack. Therefore, the sustainment priority must be to maintain the momentum of the attack.

A successful attack may develop into either exploitation or a pursuit, and sustainment plans must be flexible enough to support either type of operation. The following techniques and considerations apply to sustainment offensive planning:

- Position essential sustainment assets, such as ammunition, fuel, and maintenance, as far forward as practicable, and ensure that all basic loads are replenished.
- Plan for the smooth, effective, and efficient echelonment of sustainment assets forward as the offensive unfolds with minimal disruption to support operations.
- Establish maintenance priorities based on the commander's guidance or intent and mission, enemy, terrain and weather, troops and support available-time available, and civil considerations (METT-TC).
- Priorities may change through various operational phases.
- Plan for threats to sustainment operations or units of bypassed enemy forces in a fluid, non-contiguous battlespace.
- Recover damaged vehicles only to the main supply route for further recovery or evacuation.

- Pre-stock essential supplies forward to minimize interrupting the line of communications (LOC).
- Plan for increased consumption of petroleum, oils, and lubricants (POL).
- Anticipate increasingly long LOCs as the offensive moves forward.
- Anticipate poor trafficability for sustainment vehicles across fought-over terrain.
- Consider planned or pre-configured logistic packages of essential items.
- Plan for increased vehicular maintenance, especially over rough terrain.
- Maximize maintenance support teams well forward.
- Request distribution at forward locations.
- Increase use of meals-ready-to-eat (MREs).
- Use captured enemy supplies and equipment, and particularly support vehicles and POL. Before use, test for contamination.
- Suspend most field service functions except airdrop and mortuary affairs.
- Prepare thoroughly for casualty evacuation and mortuary affairs requirements.
- Select potential or projected supply routes, logistic release points, and support areas based on map reconnaissance.
- Plan and coordinate enemy prisoner of war (EPW) operations.
- Plan replacement operations based on known or projected losses.
- Consider the increasing distances and longer travel times for supply operations.
- Ensure that sustainment preparations for the attack do not compromise tactical plans.

These considerations apply in some degree to all offensive operations. The change from one type of operation to another, such as from a hasty attack to a pursuit, does not require a major shift in sustainment plans and procedures. However, the priorities and requirements for support may change. The main purpose of sustainment in the offensive is to maintain the momentum of the attack.

1-8. DEFENSIVE OPERATIONS

The immediate purpose of the defense is to cause an enemy attack to fail and to break the momentum of the attack. Perhaps the most critical time in the defense is the preparation stage. General considerations in preparing for defensive operations include the following:

- Preposition ammunition, POL, and barrier materiel in centrally located position well forward. Make plans to destroy those stocks, if necessary.
- Resupply during limited visibility to reduce the chance of enemy interference.

- Plan to reorganize to reconstitute lost sustainment capability.

- Use maintenance support teams in the unit maintenance collection point (UMCP) to reduce the need to recover equipment to the brigade support area (BSA).

- Consider and plan for additional transportation requirements for movement of Class IV barrier materiel, mines, and pre-positioned ammunition, plus the sustainment requirements of additional engineering units assigned for preparation of the defense.

In defensive operations, pre-position ammunition on occupied and prepared positions. However, plans must be made for the control of this ammunition.

1-9. CONTINUOUS SUPPORT

Sustainment operations are by nature continuous. Whenever there is a pause in combat operations and maneuver units are not fighting, sustainment elements from company through BCT take advantage of the lull to prepare supported units for the next operation.

Maintenance, repair work, and normal services are done whenever the opportunity exists. Repairing damaged equipment and returning it to the fight requires early diagnosis and identification of faults and is done in advance.

Emergency resupply is conducted when needed, but routine resupply is usually conducted at night. Vulnerability and limited cross-country mobility of sustainment vehicles dictate that logistic packages (LOGPAC) use existing roads and cover of night.

Continuous sustainment operations require careful personnel management. Routine details, perimeter guard, and operator maintenance use support personnel time not spent on the road. A carefully planned and strictly enforced rest-work schedule or sleep plan is necessary to ensure continuous capability.

1-10. URBAN OPERATIONS

The very nature of urban operations (UO) creates unique demands on tactical sustainment system.

Urban combat is characterized by a high usage of ammunition, primarily small arms; smoke, stun, concussion, and fragmentation grenades; close range anti-armor weapons, claymore mines; and explosives. The support plan must include how munitions are moved to the companies fighting forward in close contact with enemy forces. The urban environment will be a major obstacle due to rubble and restricted movement routes. Tracked or armored vehicles are generally necessary but carrying parties will be needed for the final leg of distribution.

During UO, fuel consumption is usually reduced, but bulk resupply is more difficult because of constricted access and reduced trafficability. Typically, engineer and power generation equipment will be the largest fuel consuming equipment unless armored vehicles are employed.

Maintenance teams must operate well forward and may utilize civilian facilities to set up repair operations. Evacuation and battle damage assessment and repair (BDAR) efforts will also be complicated by the terrain. Other considerations for UO include a high demand for tires, increased strain on communications and night vision devices, and increased small arms repair requirements.

Generally, UO casualty rates run higher, with injuries adding to combat wounded. Leaders must plan to expedite evacuating the wounded out of the urban area. Aid stations must be as far forward as possible and must be liberally stocked with supplies. Prolonged urban combat also generates incredible stress, and treatment plans must be in place for battle fatigue or combat stress cases.

Some general guidelines for sustainment during urban operations:

- Preconfigure resupply loads and push them forward at every opportunity.
- Provide supplies to using units in required quantities as close as possible to the location where those supplies are needed.
- Protect supplies and sustainment elements from the effects of enemy fire.
- Disperse and decentralize sustainment elements with proper emphasis on communication, mission command, security, and proximity of main supply route (MSR).
- Plan for extensive use of carrying parties.
- Plan for and use host country support and civil resources when practical.
- Position support units as far forward as the tactical situation permits.
- Plan for special equipment such as body armor, rope, grappling hooks, ladders, and hand tools.

1-11. STABILITY OPERATIONS

- Sustainment support for non-combat centered disaster relief and humanitarian operations.
- Support to local and/or foreign civil national governments.
- Support of and to NGOs.
- Integration of civil affairs with support planning and operations.
- Interagency planning and operations.
- May be required in locations and events within broader operations across the entire spectrum of conflict.
- May require extensive reliance on contractors and outside expertise.

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CHAPTER 2

MISSION ANALYSIS AND PERSONNEL/SUSTAINMENT ESTIMATES

2-1. GENERAL

The mission analysis process and personnel and sustainment estimates are logical and systematic processes that staff officers use to analyze the influence sustainment factors have on a contemplated course of action (COA). This chapter is designed to assist logistic staff planners in preparing a mission analysis and personnel or logistic estimate.

Mission analysis considerations feed information into the estimate process. The estimates are as thorough as time permits. At the division level, estimates are not normally written. At echelons above division, the estimate is written and follows the format outlined on the following pages. Personnel and logistic staff officers coordinate with other staff officers when preparing their estimates. They may incorporate material from other staff estimates, but they are still responsible for the validity of all data that they include in their estimate.

Personnel and sustainment estimates are kept current. As factors that influence operations change, new facts are developed and assumptions become facts or become invalid. Estimates are integral to the commander's decision-making process. The following sustainment mission analysis considerations and personnel or logistic estimate formats contain guidance and information on how to perform and complete the estimate process.

2-2. SUSTAINMENT MISSION ANALYSIS CONSIDERATIONS

The basic methodology for logistic planners within the decision-making process is to determine requirements and to evaluate capabilities, analytically comparing the two to illuminate mission shortfalls. The most basic question is what impact personnel or logistics has on combat operations.

Questions that logistic planners and operators should always be able to answer are—

- Where are we on the battlefield?
- Why are we here?
- How do we support from here?
- How do we get support from here?
- When, to where, and in what sequence do we displace to ensure continuous operations?

This methodology is based on the supported unit's sustainment needs. There are five areas to address: requirements, capabilities, shortfalls, analysis, and determining solutions. This methodology is used across the entire decision-making process. The level of detail reflects each planner's position and organization.

Requirements.

- What are the sources of basic logistic consumption requirements data and analytical calculations (e.g., personnel density, equipment density, planning factors, computer estimating models, etc.)?
- Who are the supported units and how will they change during the operation?
- Identify implied logistic tasks based on the tactical plan. (What are the ramifications of river crossings, pauses, deep attacks, pursuit, exploitation, retrograde, etc.?)
- Is there a nuclear, biological, or chemical (NBC) threat?
- What do you need?
- How long will you need it?
- Where do you need it?
- What do you need to put it there (for example, fuel bladders or bags, rough-terrain container handlers, forklifts, cranes, etc.)?
- How will you get it there?
- When do you need it there? How long will it take to get it there?
- How soon will it be available to move there?
- Does it have to move again after it gets there? Who will move it from there?
- What are the competing demands for this requirement?
- What is required to off-load it when it gets there?
- Does anything need to be done with it once it gets there? (e.g., unpacked, assembled, etc.?)
- What has to be done to move it once it is there?
- Are there special employment considerations (e.g., a large, level area of land; a fresh water source; refrigeration; dedicated transportation; or, does it need to be located near a MSR)?
- How often is it required? How often must it be replenished?
- Are there preparatory activities (e.g., berm for a bag farm)?
- What is the expected duration of the required preparation?
- How do we get the preparatory work done? Who does it?

- What support is required for preparatory activities?

- What support is required for preparatory activities?

Capabilities.

- What available units fulfill the requirement?

- What is the basis of allocation for these units?

- How many units over what time duration are needed to fulfill the mission?

- What are the overall receipt, storage, and issue requirements?

- Are receipts and issues exclusive capabilities? (For example, how much of a particular commodity can units receive, store, and issue?)

- Will or can this capability be used to logistically weight the battle?

- What are the total short tons (STs), gallon, or other distribution capability by mode? Line-haul? Local-haul? Other? What distribution planning factors were used?

- How many locations require this capability?

- Are any units with this capability already committed?

- Are any units with this capability due in? When?

- Do units depend on other units to function? (For example, some transportation requires cargo transfer company support.)

- Are there unique management or employment considerations?

Comparison or Shortfall.

- If there is no shortfall, go to the analysis portion of this methodology.

- Which requirements exceed capabilities?

- For requirements that exceed capabilities, is it overall or in a particular area, region, or time?

- How much is the shortfall in terms of quantity (ST, gallons, or square feet)?

- What does the shortfall equate to in terms of days of supply (DOS)?

- At what point in the battle is the requirement expected to exceed the capability?

- What is the type of shortfall? Availability shortfall; a resource (equipment, material handling equipment (MHE), personnel, facilities, etc.) shortfall; or a distribution shortfall?

Analysis.

Analysis is done for every support operation, whether shortfalls exist or not. Planner need to determine the overall impact on combat operations and how best to support or sustain those operations.

- What is the earliest the support operation can begin?
- What is the latest the support operation can begin?
- Is it better to be early or late?
- What is the purpose of the support (e.g., build stock levels or immediate consumption)?
- Will support be provided from a fixed location or from a forward logistic element?
- What is the shortfall's significance?
- What is the shortfall's potential impact?
- What caused the shortfall (battle loss, time-phased force deployment sequence, etc.)?
- If the shortfall is a supply availability shortfall, consider the following:
    - Is the shortfall only at our level or is it at higher levels as well?
    - Is it a result of higher commands' efforts and support priorities?
    - Is the supply available at other echelons and, if so, where?
    - How long will it take to arrive? Is there an acceptable alternative, a substitute, or an alternative source of supply?

If the shortfall is a resource shortfall (equipment, MHE, personnel, facilities, etc.), consider the following:

- Can resources be diverted or obtained from somewhere else? (For example, a cargo transfer company can supplement a corps storage or staging area (CSA) with lift, given proper supervision and technical assistance.)
- Is host nation support a viable alternative? Is a contract a viable alternative?
- How specialized is the shortfall resource? (For example, it is easier to find a mechanic than an fire control repairer.)
- Can a secondary military occupational specialty (MOS) be used?
- Does a sister service or coalition partner have the capability?

If the shortfall is a distribution shortfall, consider the following:

- Is the shortfall due to a lack of assets or due to a time-distance problem?
- Does the capability shortfall require special handling or distribution requirements?
- Are there alternative distribution modes?
- Are there alternative mode requirements? (For example, a pipeline requires continuous pump and hose or pipeline maintenance or engineering support to lay the pipeline, etc.)
- Are host nation distribution assets available?
- Are sister service or coalition assets available? Are they compatible?
- Are there any airfields, field landing strips, or helipads nearby?
- How do we echelon or displace our capability forward? Which units are involved? When?

Solutions.

- Determine the most workable solutions based on analysis.
- Integrate with other support operations and commodities.

There must be continuity and integration with the tactical decision-making process and the logistic planning process. State up front any associated, necessary, and valid assumptions for each of the model's categories (requirements, capabilities, shortfalls, analyses, and solutions).

2-3. FORMAT AND INSTRUCTIONS FOR THE PERSONNEL ESTIMATE

The J-1, G-1, or S-1 prepares the personnel estimate, an analysis of the impact on each phase of an operation. It includes a current personnel status of the organization, its subordinate units, and any attached or supporting elements.

This guidance affects deploying unit personnel and establishes policy for deployment eligibility and the operation of systems and procedures for conducting personnel services and support within specific theaters of operation.

Human resource management officers can expect to work at various levels of command. Joint Publication 1-0, *Joint Doctrine for Personnel Support to Joint Operations,* delineates the J-1's authority, roles, and responsibilities. The following excerpt from JP 1-0 specifies the joint personnel estimate.

Joint Publication 1-0
PERSONNEL ESTIMATE

CLASSIFICATION
PERSONNEL ESTIMATE NO _____

REFERENCES:

a. Maps and charts.

b. Other pertinent documents.

1. *Mission.* State the unit mission taken from the commander's mission analysis, planning guidance, and other statements.

2. *Situation and considerations.*

   a. Characteristics of the operational area. Summarize data about the area, taken from the intelligence estimate or area study, with specific emphasis on personnel activities.

   b. Enemy forces.

      - Strength and dispositions. Refer to current intelligence estimate.

      - Enemy capabilities. Discuss enemy capabilities taken from current intelligence estimate, with specific emphasis on their impact on personnel matters.

   c. Friendly forces.

      - Present disposition of major elements. Include an estimate of their strengths.

      - Own courses of action. State the proposed COAs under consideration, obtained from operations or plans division.

      - Probable developments. Review major deployments necessary in initial and subsequent phases of the operation proposed.

      - Status of replacements and/or augmentees.

      - Civilian considerations.

   d. Logistic situation. State any known logistic problems that might affect the personnel situation.

   e. Communications situation. State the situation, emphasizing known problems that may affect the personnel situation.

   f. Assumptions. State assumptions about the personnel situation essential to this estimate. Because basic assumptions for the operation already have been made and will appear in the planning guidance and in the plan itself, they should not be repeated here. Certain personnel assumptions that have been made in preparing this estimate should be stated here.

g. Special features. List everything not covered elsewhere in the estimate that may influence the personnel situation (e.g., identify available labor resources essential to support operations).

h. Personnel situation. State known or anticipated personnel problems that may influence the commander when he or she selects a specific COA.

- Unit strength maintenance. Present information for all assigned and attached units. Include the effects of deployability, losses and projected losses, critical shortages, projected gains, and personnel restrictions.

- Replacements and return to duty (RTD). Provide projected numbers by grade, MOS, or branch. Identify issues affecting the personnel processing flow.

- Non-combat issues. Include issues pertaining to other than assigned personnel that may affect the mission (e.g., POWs, local nationals, US forces augmentees, civilian internees, detainees, and DoD or DA civilians).

- Soldier personnel readiness. State morale, esprit de corps, stability and condition of soldiers, commitment and cohesion, and organizational climate.

- Personnel service support. Address changes or problems in policies or programs for awards, assignments, reassignments, finance services, health services, leaves and passes, legal services, morale support activities, orders, pay, personal affairs, personnel services, postal services, promotions, records, and religious activity.

- Technology. State the status of human resource technology that can affect the COA (e.g., very small aperture terminal (VSAT) access, Web-based and voice-based systems, and database status).

- Logistics. Include transportation requirements for R5 and postal operations; the availability of uniforms and equipment for individuals processing through the R5 who have lost, damaged or destroyed items; and, the availability of life support for individuals in the R5 process.

3. *Personnel analysis of own courses of action.* Make an orderly examination of factors influencing the proposed COAs to determine the manner and degree of influence and to isolate the personnel implications that the commander should weigh in his estimate.

   a. Analyze each COA from the personnel point of view. The detail of the analysis is driven by the level of command, the scope of contemplated operations, and the urgency of need.

   b. Decision criteria establish the elements to be analyzed for each COA under consideration. Examine each COA realistically and include appropriate considerations.

   c. Throughout the analysis, keep personnel considerations foremost in mind. The analysis is not intended to produce a decision but to ensure planners considered pertinent personnel factors.

4. *Comparison of own courses of action.* List the advantages and disadvantages of each proposed COA from the J-1, G-1, or S-1 perspective.

5. *Conclusions.*

    a. State whether or not the mission can be supported from a personnel standpoint.

    b. State which COA under consideration can be supported best from a personnel standpoint.

    c. Identify the major personnel-related deficiencies that must be brought to the commander's attention. Include recommendations of methods to mitigate such deficiencies.

Annexes (by letter and by title). Use annexes when information is of such detail and volume that inclusion in the body makes the estimate overly cumbersome. Annexes should be lettered sequentially as they occur through the estimate.

Distribution (according to procedures and policies of the issuing headquarters).

Notes.

1. The format for an estimate of the situation helps the personnel planner apply thoroughness, clarity, judgment, logic, and professional knowledge to the situation. The format is a logical and useful tool that is flexible.

2. The personnel estimate of the situation is a continuous personnel staff process.

3. The J-1, S-1, and G-1 planners use information, conclusions, and recommendations from other staff estimates to analyze the mission and may incorporate some of the material into the personnel estimate (e.g., intelligence preparation of the battlespace or battlefield (IPB), medical, logistics, or civil military affairs).

4. How planners arrive at decisions is a matter of art and science; sound decisions result from a thorough, clear, unemotional analysis of all pertinent situational data. Providing input to the unit health services plan is crucial. In coordination with the medical planners, consider the unit health services plan, and analyze the impact on current and projected operations. Areas to examine include evacuation capabilities and policies, estimates of medical causalities (injured, sick, and wounded), expected return to duty (RTD) and prisoners of war.

5. Under modularity, the brigade S-1 is the human resources center of gravity. In order to accomplish the HR mission, the brigade S-1 must have an understanding of the planning process. Management and analysis of personnel data must lead to actionable knowledge. Actionable knowledge is essential for mission analysis, of which the personnel estimate is a part.

2-4. FORMAT AND INSTRUCTIONS FOR THE SUSTAINMENT ESTIMATE

The J-4, G-4, or S-4 prepares the logistics estimate, which provides an accurate and current assessment of the sustainment status or situation including its subordinate, attached, and supporting elements. The logistics estimate is an analysis of how service support factors can affect mission accomplishment. It contains the J-4, G-4, and S-4 conclusions and recommendations about the feasibility of supporting operational and tactical missions. This estimate includes the functional areas of supply, transportation, services, maintenance, labor, facilities, and construction affecting each COA.

(Classification)

Headquarters
Location
Date, time, and zone
Msg ref no.

SUSTAINMENT ESTIMATE NO

NOTE: The suggested format is the result of various TTPs and feedback over-time from DLRO faculty.
References. Maps, charts, or other documents. Time zone used throughout the estimate.

1. Mission.

   The command's restated mission.

2. Situation and considerations.

   a. Characteristics of the area of operations.

      (1) Weather. Describe effects.

      (2) Terrain. Describe effects.

      (3) Other pertinent facts.

   b. Enemy forces. Enemy dispositions, composition, strength, capabilities, and COAs as they affect specific staff areas of concern.

   c. Friendly forces.

      (1) Friendly COAs.

      (2) Sustainment situation. This subparagraph should reflect the current status. In the case of detailed information at higher levels of command, a summary may appear under the subheading with reference to an annex to the estimate. You may use an overlay to show all Sustainment units and installations, current and proposed. Include current status, capability, and any enhanced or reduced capability attached, detached, or supporting units may cause.

         (a) Maintenance. Provide a general statement about the present capability (such as repair time factors, posture of maintenance units, some reference to Class VII and Class IX status if it affects maintenance capability, status of Class VII end items that may affect maintenance, etc.).

         (b) Supply. Provide overall status. Ammunition and POL are generally of particular importance. Include pertinent comments on resupply availability. Provide information under subheadings of classes of supply; list them in the most meaningful measure (e.g. DOS, total line items, equipment shortages by unit).

         (c) Services. Provide present status; include both capabilities and problems.

         (d) Transportation. Provide present capabilities to meet transportation requirements. Detail the adequacy of routes, facilities, and terminals to support distribution requirements. Discuss capability of movement control to provide in-transit visibility of movements and

to assure sustained flow. Address time and distance factors that influence the transportation capability against time considerations. Consider factors such as facilities and terminals, airlift or drop, and in-transit visibility.

(e) Labor. Provide present situation, status, restrictions on use of civilians, and so forth.

(f) Facilities and construction. Address availability of host nation facilities. Provide status of construction to upgrade existing facilities and create facilities where needed.

(g) Health services support (HSS). Provide present status of medical treatment and evacuation resources, projected location of patient-collecting points and ambulance exchange points (AXPs), and status of medical logistics (including blood, medical regulating, and any anticipated increase in casualty rates or EPW workloads).

(h) EPW operations. Address facilities, construction, and sustainment functions.

(i) Other factors that may adversely affect sustainment operations such as refugee or humanitarian relief operations and nongovernmental organization (NGO) support or private volunteer organization (PVO) operations.

(3) Status of other areas affecting sustainment.

(a) Civil-military operations (CMO) situation. Information for this subparagraph comes from the CMO officer. Include present dispositions of civil affairs (CA) units and installations that affect the personnel situation. Show any projected developments within the CMO field that might influence personnel operations.

(b) Personnel situation. Include information obtained from the personnel officer. Include total strength; strengths of units; and factors for casualties, replacements, hospital returnees, and so forth. Present dispositions of personnel and administration units and installations that would affect the sustainment situation. Show any projected developments within the personnel field likely to influence sustainment operations.

(c) Present disposition of forces. Describe the effects.

(4) Comparison of requirements versus capabilities. Show comparison for each element affecting personnel. Determine whether a shortfall or excess capability exists. If a shortfall exists, discuss ways to overcome it.

(5) Key considerations for course of action (COA) supportability. List your evaluative criteria.

d. Assumptions. Until the commander provides specific planning guidance, you probably will need assumptions to initiating planning and/or to prepare the estimate. As planning continues, actively seek facts to supplant or replace earlier assumptions. Be prepared to justify each assumption and explain its necessity and impact on the planning effort.

3. Analysis.

Analyze all logistical factors for each subheading (paragraph 2e) against each COA highlighting issues, problems, and deficiencies. This paragraph should contain a coherent narrative analysis explaining evaluation criteria, calculations, and applied logic. The analysis provides both logistical and tactical impact for each COA.

a. Sufficiency of area. Determine if the area under control is adequate for sustainment operations.

Will it be cleared of enemy units? Will other units be sharing the same area (units passing through one another)? Will boundaries remain unchanged?

b. Materiel and services. Include subparagraphs, as appropriate.

(1) Maintenance.

(2) Transportation.

(3) Supply.

(4) Health services support.

(5) Field services.

(6) Explosive ordnance disposal (EOD).

(7) Human resources support.

(8) Financial management.

(9) Religious.

(10) Legal and band.

(11) Contract services.

(12) Other.

4. Comparison.

a. Evaluate sustainment deficiencies. List the advantages and disadvantages against mission success.

b. Discuss the advantages and disadvantages of each considered COA. Include methods of overcoming any deficiencies or modifications each COA requires.

5. Recommendation and conclusions.

a. Indicate which COA or COAs the sustainment can best support.

b. List the major sustainment deficiencies the commander must consider. Include specific recommendations concerning the methods of mitigating the effect of these deficiencies.

/s/_____
Sustainment Officer—G4

Annexes: (as required)

_____
(Classification)

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CHAPTER 3

THE SUSTAINMENT CONCEPT, OVERLAY, MATRIX, AND ANNEX

3-1. GENERAL

After the commander selects a COA, the staff communicates this decision through the operation plan or operation order (OPLAN or OPORD). The G-4 or S-4, with input from the other logistic staff elements (G-1, S-1, G-5, surgeon, finance, personnel officers, and the support battalion or the sustainment brigade) prepares the concept of sustainment (paragraph four in the OPORD format). This paragraph contains:

- Paragraph 4a is the concept of sustainment. This concise, yet comprehensive, paragraph tells the commander, subordinate commanders, and the primary staff how the critical logistic actions unfold in support of the concept of operations (paragraph 3). The explanation follows the same phasing as used in the overall plan or frames the actions around a before, during, and after battle timeline. Remember, the concept is written for commanders and not for logisticians. The details required by logistics planners and executors are provided in appropriate annexes.

- Additional subparagraphs provide the broad concept of support on the three sustainment sub-functions, logistics, personnel services, and health service support. Provide detailed instructions for each sustainment sub-function in the appendixes to annex f, "Sustainment."

The concept of sustainment is accompanied by a sustainment overlay showing pertinent logistical information such as support units' locations, supply routes, locations, and supporting logistic organizations.

3-2. DEVELOPMENTAL GUIDELINES

General rules for paragraph 4.

- Use clear, concise, simple, yet comprehensive language; avoid technical jargon and terminology.

- Focus on what non-sustainment commanders need to know about how the operation will be sustained. This makes paragraph 4 the logistic equivalent to the concept of the operation.

- Consider the sustainment functions in the context of actions by phase of an operation or, before, during, and after the operation. The operative term is *consider*. The intent is not to address each function unless it is critical or unusual.

- The concept of sustainment establishes priorities of support (by phase or before, during, and after) for the operation. These priorities are set by commander at each level in his intent statement and the concept of the operation (paragraph 3). Priorities include such things as personnel replacements; maintenance and evacuation, by unit and by system (aviation and surface systems would be given separate priorities); fuel and/or ammunition; road network use by unit and/or commodity; and any resource subject to competing demands or constraints.

- Synchronize the concept of sustainment with the concept of the operation.

- Formations comprised of units of different parent (read BCT) organizations or who don't share habitual relationships probably lack a common tactical standing operating procedure (TSOP) and therefore require a more lengthy concept of sustainment. The more comprehensive the TSOP is, the briefer the concept of sustainment.

- The more complex the operation (a multiphase operation or operations larger formations conduct), the more critical the sustainment synchronization.

- Routine, doctrinal, or constant information *is not* included in the concept of sustainment. It is incorporated into the unit TSOP.

- Detailed and numerical data relevant to the operation, and of primary interest to unit logistic personnel, may be in appendixes to annex f, "Sustainment."

- It is important to understand the next higher commander's support priorities and where your particular unit fits into those priorities.

Logistics planners need to review the concept of sustainment and ensure it meets the commander's needs. There are several basic questions the sustainment planner should ask:

- Is the concept as simple as it could be or is it unnecessarily complicated or complex?
- Is the concept of sustainment properly synchronized with, and does it support, the concept of the operation (paragraph 3)?

- Is the concept of sustainment easily understood and is it comprehensive and concise?

- Does it facilitate visualization (a word picture) of the overall concept of sustainment?

- Does it consider and address, as required, the sustainment functions by phase of an operation or in the context of before, during, and after?

- Does it establish priorities of support by phase and do these priorities correlate with the priorities established in the commander's intent, paragraph 3, and other directives from higher?

- Is it written for non-sustainment commanders and their primary staffs and is it focused for supported units?

- Does it address all critical, non-standard operating procedure (SOP), or unusual aspects of support?

- Does it apply the sustainment characteristics?

3-3. SOURCES OF INFORMATION FOR DEVELOPING THE CONCEPT OF SUSTAINMENT

The logistician actively participating in the decision-making process facilitates the concept of sustainment's development. Specifically, during mission analysis, the sustainment planner determines the unit's current materiel and personnel posture before the operation begins. This, with the commander's priorities, determines which units and equipment items should receive priority before the operation.

The wargaming and quantitative analysis portions of COA analysis highlight critical and/or unusual logistic requirements and determine support priorities during each phase of the operation. By its very nature, wargaming facilitates logistic synchronization with the concept of the operation.

There are numerous other information sources for the concept of sustainment. These include—

- The commander's guidance and intent.
- The operational concept.
- Higher headquarters concept of sustainment, service support plan, and sustainment overlay.
- Maneuver control system screens and/or other locally-generated status charts.
- Lessons learned data and historical perspectives to view how others successfully, or unsuccessfully, supported similar operations.
- The unit's battle book.

3-4. SUSTAINMENT FUNCTION PLANNING CONSIDERATIONS

The areas of consideration listed below *are not intended as an all-encompassing checklist and some may not apply.* They are intended, rather, as a point of departure for sustainment planners developing a sufficient concept of sustainment. Although the items are considered, they are not necessarily addressed in the concept of sustainment unless they are critical, non-SOP, or unusual.

Items for overall consideration:

- Support boundaries, support areas, and support relationships.
- Route or event (timing) priorities.
- Supporting attached or detached forces (cavalry, light infantry, covering force units, out-of-sector support, heavy or light force mixes, etc.)
- Sustainment actions in assembly areas (AA), staging areas, and attack positions (if any).
- Programmed locations and projected displacements of logistic support units and areas.
- Support provided by or to higher or adjacent units or other unusual support arrangements.

- Sustainment actions supporting security and/or deception plans and/or operations.
- Foreign nation support and/or host nation support arrangements.
- Sustainment unit availability and task organization (capability versus requirements).
- Unusual and/or critical impact of weather, terrain, and security on sustainment operations.
- Unit reconstitution.
- Special considerations for joint or combined sustainment operations.

Items to consider in each phase of the operation:

1. *Maintenance.*
   - Maintenance priorities (air and ground).
   - Anticipated workload (battle damage and maintenance failure rates and projections).
   - BDAR procedures.
   - Maintenance repair timelines.
   - Controlled substitution or cannibalization procedures.
   - Maintenance support team employment.
   - Locations or displacements of maintenance or repair part supply units.
   - Support from other sources.
   - Distribution methods for Classes VII and IX.
   - Evacuation procedures may include recovery procedures.
   - Significant risks.
2. *Transportation.* Transportation requirements (logistical versus tactical).
   - Movement and route use priorities (units and/or commodities).
   - Traffic control requirements.
   - Transportation unit or asset displacements.
   - Throughput operations.

- Trailer transfer arrangements or cargo transfer and terminal operations.
- Alternate modes of transportation; e.g., rail, foreign nation support.
- Lines of communication (LOC) security.
- Supply routes. Route maintenance and security requirements (effects of weather, enemy, and engineer support).
- Mode selection, heavy equipment transporter (HET) priorities, and backhaul priorities.
- Support from sister services.
- Significant risks.

3. Supply.

- Replenishment operations (RO) and reconstitution.
- Classes of supply I, II, III, III(P), IV, V, VI, VII, and IX (less VIII).
- Distribution methods (supply point or unit).
- Support from other sources.
- Refugees.
- Current status (in vehicles and bulk carriers or storage).
- Bulk refueling procedures.
- Refuel on the move (ROM) and/or forward arming and refueling point (FARP) operations.
- Refuel assets.
- Fuel allocations.
- Displacement of fuel and refueling assets.
- Loads' status: basic, operational, combat, or combat configured.
- Required supply rate (RSR) versus controlled supply rate (CSR).
- Forecasted requirements and ammunition prestocking arrangements.
- CSR suballocation.

- Ammunition transfer and holding point (ATHP), ammunition supply point (ASP), and theater staging area (TSA) locations (only general locations and grids on the sustainment overlay).

- Distribution methods.

- Emergency resupply procedures.

- Expenditure restrictions (e.g. no more than what percent of the CSR may be expended to support the covering force?).

- Monitoring and reporting requirements.

4. *Health services support.*

- Projected casualties and their effect on combat readiness.

- Establishing or adjusting personnel and medical support priorities.

- Medical treatment facility locations.

- Evacuation procedures for killed in action (KIA) and wounded in action (WIA).

5. *Field services*.

- Location of field service units and capabilities.

- Location of mortuary affairs personnel, aerial delivery units, clothing exchange, laundry, showers, textile repair, and food services.

6. *Explosive ordnance disposal (EOD).*

- Location of EOD units and capabilities.

- Identifying procedures for neutralizing domestic or foreign conventional nuclear, chemical, and biological munitions and devices that present a threat to military operations and civilian facilities.

7. *Human resources support.*

- Manning the force, to include personnel readiness management, personnel accounting and strength reporting replacements and rest and relaxation (R&R) operations.

- Providing human resource services, to include awards, promotions, military pay, and casualty operations.

- Location of personnel accounting activities, casualty management, postal operations, and morale, welfare, and recreation (MWR) facilities and equipment.

- Providing personnel support, to include: postal operations and MWR support.

8. *Financial management operations*. Location of financial and resource management services.

9. *Religious, legal, and band support.* Location of religious support operations, legal operations, and band support.

3-5. CONCEPT OF SUSTAINMENT FORMAT

The concept of sustainment format is structured according to the warfighter's operational plan. The format below may use the "support by phase" methodology or a "before, during, and after operations" methodology. An example of a concept of sustainment is shown below and in appendixes c and d. The concept of sustainment method used by the sustainment planner must match the operational concept. This ensures clarity and synchronization in planning.

The concept of sustainment's intent is not to "boilerplate" unnecessary information. Rather, it is to think through specifically applying logistics to the concept of the operation and to craft a word picture that non-sustainment commanders and their primary staffs can easily understand.

While each of the sustainment functions are considered under each phase of the operation, *they should only be addressed if the support arrangement is critical, non-SOP, or unusual*.

Example concepts of support for brigade, and division are provided in appendixes c and d. These are not related to any specific concept of operation but are provided to illustrate format and to provide a feel for concepts of support at various levels.

* * * * * * * * * * * * *

(FORMAT)

4. (U) Sustainment. Describe the concept of sustainment, including priorities of sustainment by unit or area. Include instructions for administrative movements, deployments, and transportation-or references to applicable appendixes-if appropriate.

Use the following subparagraphs to provide the broad concept of support for logistics, personnel, and Army health system support. Provide detailed instructions for each sustainment sub-function in the appendixes to Annex F (Sustainment) listed in Annex B.

a. (U) Logistics. Refer to Annex F (Sustainment) as required.

Planners will provide an overall view of the concept of sustainment. The intent is to provide the non-sustainment commanders and their primary staffs an image of how the operation will be logistically supported. If the information pertains to the entire operation, or if it pertains to more than one unit, include it in the introductory portion of paragraph 4 then change it in the ensuing subparagraphs when needed.

This could include—

- A brief synopsis of the support command mission.
- Support command headquarters and/or support area locations, including locations of next higher logistic bases if not clearly conveyed in the sustainment overlay.
- The next higher level's support priorities and where the unit fits into those priorities.
- Priorities remaining unchanged throughout the operation.
- Units in the next higher sustainment organization supporting the unit.
- Significant and/or unusual sustainment issues that might impact the overall operation.
- The use of host nation support.
- Any significant sustainment risks.

PHASE I (Starts with "event" and ends with "event.")

- Logistic focus.
- Priorities:
    - By unit.
    - Movement.
    - By class of supply.
    - Maintenance and/or recovery and evacuation priorities (by unit and equipment type).
- Critical events or other pertinent information needed to communicate how logistic support will be conducted for the operation. Arrange other information in the concept of sustainment by sustainment function.
- Sustainment risks.

PHASE II (Starts with "event" and ends with "event.") If there are any differences or changes, state them in this paragraph.

- Logistic focus.
- Priorities
    - By unit.
    - Movement.
    - By class of supply.
    - Maintenance and/or recovery and evacuation priorities (by unit and by equipment type).

- Critical events or other pertinent information needed to communicate how logistic support will be conducted for the operation. Arrange other information in the concept of sustainment by sustainment function.

- Critical decision points.

- Sustainment risks.

PHASES III, IV and V (Starts with "event" and ends with "event.") If there are any differences or changes from previous phases, state them here.

- Logistic focus.

- Priorities:

  - By unit.
  - Movement.
  - By class of supply.
  - Maintenance and/or recovery and evacuation priorities (by unit and equipment type).

- Critical events or other pertinent information needed to communicate how logistic support will be conducted for the operation. Arrange other information in the concept of sustainment by sustainment function.

- Reconstitution (referenced in the last phase).

- Regeneration (last phase).

- Preparing for future operations (last phase).

- Sustainment risks.

b. (U) Personnel. Refer to Annex F (Sustainment) as required.
(1) Priorities by phase for for personnel replacements.
(2) Critical events or other pertinent information needed to communicate how personnel support will be conducted for the operation.

c. (U) Army Health System Support. Refer to Annex F (Sustainment) as required.
(1) Evacuation plan and priorities by phase.
(2) Critical events or other pertinent information needed to communicate how Army Health System Support will be conducted for the operation.

Paragraphs 4a through 4c are normally more detailed and are included in the service support annex F. They are not normally part of the concept of sustainment.

Concepts of support written before, during, and after format follow the same guidance as by phase.

3-6. BRIEFING THE CONCEPT OF SUSTAINMENT

The logistician's role in the overall OPLAN or OPORD briefing is to brief the concept of sustainment, but he must first understand the concept of the operation and the commander's intent. This briefing facilitates communicating the concept of sustainment to the commander and the subordinate commanders. The concept of sustainment briefing should address the critical, non-SOP, or unusual aspects of logistic support by phase of an operation by critical sustainment functions. Doctrinal, usual, or SOP matters should not be addressed unless there is a deviation in support relationships or normal methods. The sustainment planner briefs the concept of sustainment, working through the operation by phase. This briefing should go into greater detail than is laid out in the written concept of sustainment.

Some rules of thumb for the concept of sustainment briefing:

- Tell commanders what they can expect from sustainment and how many days or hours they can operate based on materiel readiness, quantities of supplies on hand, etc. Use common terms such as DOS or other terms meaningful to the commander. Avoid jargon, technical terminology, or SOP information.

- Address the "culminating point" from a logistic perspective.

- Avoid briefing the extensive number crunching associated with the logistics estimate process—brief the impact (the "so what"); be prepared to present or discuss your methodology.

- Do not read a written product; explain using the sustainment overlay and appropriate visual aids, such as a concept of sustainment overview matrix. Show the commander how the concept of sustainment is synchronized with and supports the concept of the operation.

- The briefing should include locations of critical logistic assets, headquarters, and events.

- Address priorities, shifts in priorities, problem areas and solutions, and critical events.

- The bottom line: The logistician must tell the commander what he needs to know.

Concept of sustainment briefing format:

- Introduction (overview of the concept of sustainment and orientation to the map, if required). Orientation to the map is not required if another briefer has done so previously. Do not assume the commander totally knows the terrain. Focus on locating critical sustainment nodes, MSRs, etc.

- Brief the concept of sustainment starting with critical actions that must be accomplished in the first phase of the operation and conclude with critical actions to be accomplished in the last phase. This will prepare for future operations using the sustainment functions as a guide.

- Identify which units have priorities for each critical sustainment function. (This should correlate with the commander's priorities, e.g., main effort.)

- Identify the next higher echelon unit providing support and/or backup support.

- Identify any critical shortages or problem areas for each sustainment function and solution. For example, this can be supported, but ____, or it can be done, but not without risk to____.

- Identify any other sustainment problem areas, arrangements, special requirements, or any other critical aspects addressed elsewhere in the briefing.

3-7. THE SUSTAINMENT OVERLAY

The sustainment overlay is a graphic representation of the tactical array of support areas and units. Ideally, it accompanies copies of the OPLAN and/or OPORD distributed to subordinate headquarters and is used as a graphic backdrop to OPORD, paragraph 4, "Concept of Sustainment." (See appendixes e, f, as examples.)

The sustainment overlay should include (as a minimum)—

- Locations of current and proposed support areas.

- Boundaries for sustainment responsibilities.

- MSRs.

- Locations of major headquarters.

- Locations of sustainment installations and units.

- Locations of critical resources (potable water, maintenance collection points, ATHPs, mortuary affairs (MA) collection points, AXPs, etc.).

The sustainment overlay will not only depict the tactical array of sustainment units and nodes, but it is also an integral part of the overall OPLAN and OPORD graphics and must be synchronized with the operations overlays.

1. A BCT sustainment overlay includes (as a minimum)—

- The BSA location and, using type unit symbols, the sustainment units and headquarters located therein.
- Locations of alternate and proposed BSAs.

- Locations of forward support companies (FSC).

- The supply routes from the BSA to logistic release points and/or maintenance collection points.

- The MSR from the supporting sustainment brigade logistics support area to the BSA.

NOTE: A sample brigade sustainment overlay is in appendix c.

2. A division sustainment overlay (appendix e) would include (as a minimum) —

- The logistic support area (LSA) for the supporting sustainment brigade, location and using type unit symbols, the sustainment units and headquarters contained therein, and whether they are divisional or nondivisional.

- Locations of alternate and/or proposed LSAs.

- The MSRs from the corps or theater rear area to the LSA and on to each BSA. **NOTE:** A sample division sustainment overlay is in appendices e and f.

3. A corps sustainment overlay may have to encompass the entire corps area of operation (AO) as well as a part of the communication zone and, as a minimum, would depict—

- The logistic support areas (LSAs) and, using type unit symbols, the sustainment units and headquarters located therein, and the locations of any other critical sustainment nodes that are not located in an LSA.

- The MSRs leading into the corps rear area from the communications zone and the MSRs leading from the corps rear area to each division support area (or, as a minimum, to the division rear boundary) and to other critical logistic nodes.

- Locations of alternate and/or proposed LSAs.

- Locations of corps sustainment units operating forward of the divisional rear boundaries.

3-8. THE SUSTAINMENT MATRIX

The oral concept of sustainment briefing allows the commander and his subordinates to visualize how the operation is sustained. The sustainment planners' oral briefing, using the sustainment overlay, is useful in communicating the concept of sustainment to the commander, and clarifying issues, problems and/or concerns. In addition, a concept of sustainment matrix can make complex logistic concepts more easily understood. The matrix can complement the briefing. (An example matrix is in appendix g.)

The concept of sustainment matrix's design is aligned with the concept of sustainment format. The logistic functions are in the "by phase" context. The matrix can also be modified to reflect before, during, and after phases. The matrix will highlight those critical aspects of each sustainment function. It can also depict other critical information such as priorities, shifts in priorities, problem areas, critical events, and other critical action. The matrix is not intended to stand alone or to replace the concept of sustainment briefing. It should complement and supplement the concept of sustainment briefing.

3-9. THE SUSTAINMENT ANNEX

This example provides fundamental considerations, formats, and instructions for developing Annex F (Sustainment) to the base plan or order.

Commanders and staff use Annex F to describe how sustainment operations support the concept of operations described in the base plan or order. The chief of sustainment (S-4) is responsible for developing the annex.

[CLASSIFICATION]

Place the classification at the top and bottom of every page of the attachments. Place the classification marking (TS), (S), (C), or (U) at the front of each paragraph and subparagraph in parentheses. Refer to AR 380-5 for classification and release marking instructions.

Copy ## of ## copies
Issuing headquarters
Place of issue
Date-time group of signature
Message reference number

Include the full heading if attachment is distributed separately from the base order or higher-level attachment.

ANNEX F (SUSTAINMENT) TO[8] OPERATION PLAN/ORDER [number] [(code name)]—[issuing headquarters] [(classification of title)]

(U) References: List documents essential to understanding the attachment.

a. *List maps and charts first. Map entries include series number, country, sheet names, or numbers, edition, and scale.*

b. *List other references in subparagraphs labeled as shown.*

c. *Doctrinal references for sustainment include the FM 4-0 series.*

(U) Time Zone Used Throughout the Order: *Write the time zone established in the base plan or order.*

1. (U) Situation. *Include information affecting the sustainment operations that paragraph 1 of the OPLAN or OPORD does not cover or that needs expansion.*

a. (U) Area of Interest. *Describe the area of interest as it relates to the sustainment. Refer to Annex B (Intelligence) as required.*

b. (U) Area of Operations. *Refer to Appendix 2 (Operation Overlay) to Annex C (Operations) as required.*

(1) (U) Terrain. *Describe the aspects of terrain that impact sustainment operations. Refer to Annex B (Intelligence) as required.*

[page number]
[CLASSIFICATION]

[8] theater opening

(2) (U) Weather. *Describe the aspects of weather that impact sustainment operations. Refer to Annex B (Intelligence) as required.*

c. (U) Enemy Forces. *List known and templated locations and activities of enemy sustainment units for one echelon up and two echelons down. List enemy maneuver and other capabilities that will impact friendly sustainment operations. State expected enemy sustainment courses of action and employment of enemy sustainment assets. Refer to Annex B (Intelligence) as required.*

d. (U) Friendly Forces. *Outline the higher headquarters' sustainment plan. List designation, location, and outline of plan of higher, adjacent, and other sustainment assets that support or impact the issuing headquarters or require coordination and additional support.*

e. (U) Interagency, Intergovernmental, and Nongovernmental Organizations. *Identify and describe other organizations in the area of operations that may impact the conduct of sustainment operations or implementation of sustainment-specific equipment and tactics. Refer to Annex V (Interagency Coordination) as required.*

f. (U) Civil Considerations. *Describe the aspects of the civil situation that impact sustainment operations. Refer to Annex B (Intelligence) and Annex K (Civil Affairs Operations) as required.*

g. (U) Attachments and Detachments. *List units attached or detached only as necessary to clarify task oganization. Refer to Annex A (Task Organization) as required.*

h. (U) Assumptions. *List any sustainment-specific assumptions that support the annex development.*

2. (U) Mission. *State the mission of sustainment in support of the base plan or order.*

3. (U) Execution.

a. (U) Scheme of Sustainment Support. *Describe how sustainment supports the commander's intent and concept of operations. Establish the priorities of sustainment support to units for each phase of the operation. Refer to Annex C (Operations) as required.*

b. (U) Tasks to Subordinate Units. *List sustainment tasks assigned to specific subordinate units not contained in the base order.*

c. (U) Coordinating Instructions. *List only instructions applicable to two or more subordinate units not covered in the base plan or order.*

4. (U) Sustainment. *Identify priorities of sustainment for key tasks and specify additional instructions as required.*

a. (U) Materiel and Services. *Provide materiel and services information in the following subparagraphs.*

(1) (U) Maintenance. *Provide maintenance information for each subparagraph, to include priority of maintenance, location of facilities and collection points, repair time limits at each level of maintenance,and evacuation procedures. Post maintenance collection points and command posts to the sustainment overlay at Tab A (Sustainment Overlay) to Appendix 1 (Logistics) to Annex F (Sustainment). Refer to Tab B (Maintenance) to Appendix 1 (Logistics) to Annex F (Sustainment) as required.*

(a) (U) Ground. *Identify the proper procedures to request ground recovery and maintenance.*

(b) (U) Watercraft. *Identify the proper procedures to request watercraft recovery and maintenance.*

(c) (U) Aircraft. *Identify the proper procedures to request aircraft recovery and maintenance.*

(d) (U) Field Maintenance. *Identify, list, and describe the recovery plan and types of recovery vehicles available; Class IX parts support; the locations of maintenance collection points; logistics civil augmentation program (LOGCAP) capabilities and availability; and field maintenance support relationships at each phase of the operation.*

(e) (U) Sustainment Maintenance. *Identify, list, and describe the location of sustainment maintenance units and services; the locations of maintenance collection points; the LOGCAP capabilities and availability; and sustainment maintenance support relationships at each phase of the operation.*

(2) (U) Transportation. *Provide transportation information for each subparagraph. Identify facility locations, traffic control, regulation measures, main supply routes, alternate supply routes, transportation critical shortages, and other essential transportation data not provided elsewhere. Post main supply routes, alternate supply routes, and transportation facilities to the logistics synchronization matrix and the overlay at Tab A (Sustainment Overlay) to Appendix 1 (Logistics) to Annex F (Sustainment). Identify and list transportation request procedures. Refer to Tab C (Transportation) to Appendix 1 (Logistics) to Annex F (Sustainment) as required.*

(a) (U) Ground. *Identify the proper procedures to request ground transportation.*

(b) (U) Sea/River/Water. *Identify the proper procedures to request sea, river, and water transportation.*

(c) (U) Air. *Identify the proper procedures to request air transportation.*

(d) (U) Container Management. *Describe the container management plan.*

(3) (U) Supply. *Provide information by class of supply in each subparagraph. Identify and list maps, water, special supplies, and excess and salvage materiel, as applicable. For each subparagraph, list supply point locations and state supply plan and procedures. Post supply points and facilities to the logistics synchronization matrix and the overlay at Tab A (Sustainment Overlay) to Appendix 1 (Logistics) to Annex F (Sustainment). Refer to Tab D (Supply) to Appendix 1 (Logistics) to Annex F (Sustainment) as required.*

(a) (U) Class I Rations. *Identify and list the issue and ration cycle, ration stockage objectives, and the bulk water locations.*

(b) (U) Class II Organizational Clothing and Individual Equipment and Maps. *Identify and list organizational clothing and individual equipment available for this operation. Submit classified map requests through G-2 (S-2) channels.*

(c) (U) Class III Bulk Fuel; Class III Package Petroleum, Oils, and Lubricants. *Identify and list quantities of petroleum, oil, and lubricant; locations of the retail and bulk fuel points; and types of products available at each site available to support the operation.*

(d) (U) Class IV Construction and Fortification Material. *Identify and list construction and fortification or barrier material available for this operation including command-controlled items.*

(e) (U) Class V Munitions. *Identify and list available ammunition and the controlled supply rates. List the procedures to request explosive ordnance disposal support. Refer to Annex E (Protection) as required for explosive ordnance disposal support.*

(f) (U) Class VI Personal Demand Items. *Describe the Class VI plan. Identify and list items available.*

(g) (U) Class VII Major End Items. *Identify and list major end items available for this operation.*

(h) (U) Class VIII Medical Supply. *Identify and list medical supplies available for this operation.*

(i) (U) Class IX Repair Parts. *Identify and list all critical shortage, repair parts, and command-controlled items available for this operation. State the approving authority for controlled exchange of parts.*

(j) (U) Class X Material for Nonmilitary or Civil Affairs Operations. *Identify and list material available for this operation.*

(k) (U) Miscellaneous. *Identify and list any other available materiel and supplies not mentioned in the above subparagraphs available for this operation.*

(4) (U) Field Services. *Identify and list key field services available during this operation. At a minimum, this paragraph and subparagraphs must contain the location and the responsible unit for each separate field service activity. Identify and list locations and operating hours for laundry facilities, shower facilities, clothing repair facilities, food services facilities, billeting facilities, and field sanitation facilities. Highlight field sanitation requirements for each service, such as water purification and trash removal. Post field service facilities to the logistics synchronization matrix and the overlay at Tab A (Sustainment Overlay) to Appendix 1 (Logistics) to Annex F (Sustainment). Refer to Tab E (Field Services) to Appendix 1(Logistics) to Annex F (Sustainment) as required.*

(a) (U) Construction. *Identify and list available construction material. Provide essential information as appropriate.*

(b) (U) Light Textile Repair and Showers, Laundry, and Clothing Repair. *Identify and list locations of showers, laundry, and clothing repair available for this operation.*

(c) (U) Food Preparation. *Identify and list food preparation available for this operation.*

(d) (U) Water Purification. *Identify and list water purification locations and units available for this operation.*

(e) (U) Aerial Delivery. *Identify and list aerial delivery available for this operation.*

(f) (U) Installation Services. *Identify and list installation services available for this operation.*

(5) (U) Distribution. *Provide information about distribution support. Refer to Tab F (Distribution) to Appendix 1 (Logistics) to Annex F (Sustainment) as required.*

(a) (U) Distribution Nodes' Locations. *Identify and list the location of distribution nodes (seaport of debarkation and arrival/departure airfield control group).*

(b) (U) Tracking Procedures. *Identify and discuss the tracking procedures.*

(c) (U) Distribution Modes. *Identify and list the various distribution modes: land, sea, or air.*

(d) (U) Movement Request Format. *Discuss the movement request format and processing requirements.*

(e) (U) Container Operations. *Discuss container management and operations.*

(f) (U) Movement Control Responsibility. *Identify units at each level responsible for movement control.*

(6) (U) Contract Support Integration. *Identify and list key contract support integration functions for this operation. Identify the location and contract support unit responsible at each level. Identify contract support capabilities, limitations, and priority of support. Refer to Tab G (Contract Support Integration) to Appendix 1 (Logistics) to Annex F (Sustainment) as required.*

(7) (U) Mortuary Affairs. *Provide information about mortuary affairs support. Refer to Tab H (Mortuary Affairs) to Appendix 1 (Logistics) to Annex F (Sustainment) as required.*

(8) (U) Internment and Resettlement Support. *Identify and list the location and the unit responsible for each level of internment and resettlement operations. Identify all major capabilities and known limitations that may affect the operation. Discuss the procedures for internment and resettlement, to include transportation, field service, personnel processing, mortuary affairs, and health services. Refer to Tab I (Internment and Resettlement) to Appendix 1 (Logistics) to Annex F (Sustainment) and Appendix 13 (Internment and Resettlement Operations) to Annex C (Operations) as required.*

(9) (U) Labor. *Provide information about contract labor. Refer to Appendix 1 (Logistics) to Annex F (Sustainment) and Annex P (Host-Nation Support) as required.*

b. (U) Personnel. *Provide personnel information. Outline plans for unit-strength maintenance; personnel management; morale development and maintenance; discipline, law, and order; headquarters management; force provider; religious support; and legal and finance support. Post personnel services unit locations to the logistics synchronization matrix and the overlay at Tab A (Sustainment Overlay) to Appendix 1 (Logistics) to Annex F (Sustainment). Refer to Appendix 2 (Personnel Services Support) to Annex F (Sustainment) as required.*

(1) (U) Human Resources Support. *Provide human resources support information. Refer to Tab A (Human Resources Support) to Appendix 2 (Personnel Services Support) to Annex F (Sustainment) as required.*

(2) (U) Financial Management. *Provide financial management support information. Refer to Tab B (Financial Management) to Appendix 2 (Personnel Services Support) to Annex F (Sustainment) as required.*

(3) (U) Legal Support. *Provide legal support information. Refer to Tab C (Legal Support) to Appendix 2 (Personnel Services Support) to Annex F (Sustainment) as required.*

(4) (U) Religious Support. *Provide religious support information. Refer to Tab D (Religious Support) to Appendix 2 (Personnel Services Support) to Annex F (Sustainment) as required.*

(5) (U) Band Operations. *Provide band operations support information. Refer to Tab E (Band Operations) to Appendix 2 (Personnel Services Support) to Annex F (Sustainment) as required.*

c. (U) Army Health System Support. *Provide Army Health System Support information. Identify availability, priorities, and instruction for medical care. Describe the plan for collection and medical treatment of sick, injured, or wounded U.S., multinational, and joint force soldiers, enemy prisoners of war, detainees, and, when authorized, civilians. Describe support requirements for health service logistics (including blood management), combat operational stress control, preventive medicine, dental services, medical laboratory support, and veterinary services. Post hospital and medical treatment facility locations to the logistics synchronization matrix and the overlay at Tab A (Sustainment Overlay) to Appendix 1 (Logistics) to Annex F (Sustainment). Refer to Appendix 3 (Army Health System Support) to Annex F (Sustainment) as required.*

(1) (U) Medical Evacuation. *Provide medical evacuation information. Address the theater evacuation policy, en route care, medical regulating (if appropriate), casualty evacuation, and the medical evacuation of casualties contaminated with chemical, biological, radiological, and nuclear ordnance.*

(2) (U) Hospitalization. *Provide hospitalization information and guidelines. List the locations of medical treatment facilities. Identify and list area units without organic medical resources requiring support and describe how to support these units. Describe the procedures for mass casualty operations and patient decontamination operations. Identify and list levels of medical care (I, II, III, and IV) by treatment facility and location. Refer to Tab A (Sustainment Overlay) to Appendix 1 (Logistics) to Annex F (Sustainment) and Appendix 3 (Army Health System Support) to Annex F (Sustainment) as required.*

d. (U) Foreign Nation and Host-Nation Support. *Provide host-nation support information. Refer to Annex P (Host-Nation Support) as required.*

e. (U) Resource Availability. *Identify significant competing demands for sustainment resources where expected requirements may exceed resources.*

f. (U) Miscellaneous. *Provide any general miscellaneous information not covered in this annex.*

5. (U) Command and Signal.

a. (U) Command.

ANNEX F (SUSTAINMENT) TO OPERATION PLAN/ORDER [number] [(code name)]—[issuing headquarters] [(classification of title)]

(1) (U) Location of Commander. *State the location of sustainment area leaders.*

(2) (U) Succession of Command. *State the succession of command if not covered in the unit's SOPs.*

(3) (U) Liaison Requirements. *State the sustainment liaison requirements not covered in the base order.*

b. (U) Control.

(1) (U) Command Posts. *Describe the employment of sustainment-specific command posts (CPs), including the location of each CP and its time of opening and closing.*

(2) (U) Reports. *List sustainment-specific reports not covered in standard operating procedures. Refer to Annex R (Reports) as required*.

c. (U) Signal. *Address any sustainment-specific communications requirements. Refer to Annex H (Signal) as required.*

ACKNOWLEDGE: *Include only if attachment is distributed separately from the base order.*

[Commander's last name]
[Commander's rank]

The commander or authorized representative signs the original copy of the attachment. If the representative signs the original, add the phrase "For the Commander." The signed copy is the historical copy and remains in the headquarters' files.

OFFICIAL:
[Authenticator's name]
[Authenticator's position]

Use only if the commander does not sign the original attachment. If the commander signs the original, no further authentication is required. If the commander does not sign, the signature of the preparing staff officer requires authentication and only the last name and rank of the commander appear in the signature block.

ATTACHMENTS: *List lower-level attachments (appendixes, tabs, and exhibits).*

Appendix 1 – Logistics
Appendix 2 – Personnel Services Support
Appendix 3 – Army Health System Support

DISTRIBUTION: *Show only if distributed separately from the base order or higher-level attachments.*

[page number]
[CLASSIFICATION]

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CHAPTER 4

SUSTAINMENT PLANNING AND CONSUMPTION DATA

4-1. GENERAL

The following planning information was developed by the Department of Logistics and Resource Operations (DLRO) to support CGSOC course instruction. This information is contained in current staff planning manuals, FMSWeb (registration is required), OPLOG Planner, and other CASCOM-developed data. While the data are based on current operational planning factors, this information is designed for instructional purposes only and is applicable to actual operations only when planning addresses the particular circumstances, organization, and historical planning and/or usage factors in addition to METT-TC considerations.

NOTE: All consumption factors and data are also applicable to COIN operations.

4-2. GENERAL SUPPLY PLANNING (Classes I, II, III(P), IV, Mail, and Water)

Class of Supply	Planning Factors
Class I (MRE)	1.75 lb per meal M-M-M = 5.25 pounds per person/per day (PPD)
Class II	SWA = 1.6 PPD Northeast Asia (NEA) = 2.2 PPD Other (Average) = 1.9 PPD
Class III(p)	0.51 PPD
Class IV	NEA = 9.92 PPD SWA = 8.09 PPD Other (Average) = 9.01 PPD
Class VI (after D+60)	Temperate = 2.06 PPD Tropic/Arid = 3.74 PPD Arctic = 1.78 PPD
Class IX	NA – Calculated in tonnage
Mail	Average = 1.34 PPD

Figure 4-1. General Supply Planning Data.

Class	Direct Support (DS)	General Support (GS)
CL I	3	7
CL II	3	7
CL III(P)	3	7
CL III	1	3
CL IV	2	4
CL V	3	7
CL VI	3	7
CL VII	1 day losses	N/A

Figure 4-2. Operational-Level (Theater/Corps) "Typical" Stockage Objectives Expressed in Days of Supply (DOS).

NOTE: Numbers are for planning only. Stockage objectives are based on METT-TC.

Class I Transportation planning factors: MREs.

Ration Package	Weight
Meals per case	12
Cases/pallet	48
Weight/case	22.7 lb
Weight/pallet	1,089 lb

Figure 4-3. Weight Computation.

Vehicle	Pallets	Meals
5t (gate up)	4	2,304
5t (gate down)	9	3,456
Heavy Expanded Mobile Tactical Truck (HEMTT)	8	4,608
M871 (30-ft)	14	8,064
M872 (40-ft)	18	10,368

Figure 4-4. Lift Capacity.

Class I transportation planning factors: Unitized Group Rations (UGR).

Ration Package	Weight
Servings/module	50
Modules/pallet	8 (400 servings)
Weight/module	128 lb
Weight/pallet	1,020 lb
Pallet size	40”/48”/40”

Figure 4-5. Weight Computation.

Vehicle	Pallets	Meals
5t (gate up)	4	1,600
5t (gate down)	6	2,400
HEMTT	8	3,200
M871 (30-ft)	14	5,600
M872 (40-ft)	18	7,200

Figure 4-6. Vehicle Lift Capacity.

Health and Comfort Packages CL I. (Soldier personal hygiene items).

Item	Contents	Weight/Case	Usage
Health and Comfort Pack (HCP) I	Male and female personal hygiene items	58 lb	10 persons for 30 days
HCP II	Female unique personal items	20 lb	10 persons for 30 days

Figure 4-7. Health and Comfort Packages.

Water. The following tables depict water production assets, allocation of water assets, and consumption factors.

Equipment/System	Capacity
Load Handling System Compatible Water Tank Rack (HIPPO)	- 2,000-gal tank design for palletized load system (PLS)/LHS transport.
Tactical Water Purification System (TWPS)	- 1,500 gallons per hour (GPH) from fresh and 1,200 GPH from salt water. - LHS-compatible flatrack mounting system.
Semi-Trailer Mounted Fabric Tank (SMFT)	- SMFT is moved either completely empty or full. - 3,000 gallons (30-ft) on an M871. - 5,000 gallons (40-ft) M872 trailer.
Lightweight Water Purifier (LWP)	- Light vehicle transportable. - Maximum production: 125 GPH.
Reverse Osmosis Water Purification Unit (ROWPU) 3k	- Maximum production: 3,000 GPH.

Figure 4-8. Water Production and Storage Equipment.

Unit	SRC	TWPS	HIPPO	ROWPU 3K	LWP	SMFT
Distribution Company/BSB (ABCT)*	63328R100	1	16	0	2	*
Quartermaster (QM) Water Company	10460F000	4	*	4	6	*

Figure 4-9. Water Production by Unit.

***NOTE:** Some units cannot be found through an FMSWeb SRC query, primarily companies of a parent unit (i.e. BSB/GSAB). Go to the parent unit and select *Approved TOE Narrative* and the SRCs/units will be addressed.

Water Planning Factors. Water requirement planning is necessary for all US Army units, regardless of their global or theater location. Water for drinking, personal hygiene, and field feeding must be potable. Water for heat injury treatment must be disinfected and should be potable. Water for vehicle maintenance operations must be fresh, but does not have to be potable. Numbers in the charts below are in gallons per man per day.

Use	Temperate	Tropical	Arid	Arctic
Drinking water	1.5	3.0	3.0	2.0
Personal hygiene	1.7	1.7	1.7	1.7
Field feeding	2.8	2.8	2.8	2.8
Heat injury treatment	.1	.2	.2	.1
Vehicle maintenance	--	--	.2	--
Standard planning factor	6.1	7.7	7.9	6.6

Figure 4-10. Sustainment Planning Factors in Gallons/Man/Day.

Echelon	Temperate	Tropical	Arid	Arctic
Company	4.1	5.5	5.7	4.1
Battalion	6.6	8.3	8.5	7.2
BCT	6.7	8.3	8.5	7.2
Division	6.7	8.3	9.2	7.2
Echelons above Division (EAD)	8.0	9.6	20.5	8.5

Figure 4-11. Sustainment Planning Factors in Gallons/Man/Day by Echelon.

Example: Calculating general supply requirements. Calculate the general supply requirements (Classes I, II, III(P), IV, mail, and water) for an armor brigade combat team (ABCT) for one day. The ration cycle is M-M-M. Health and comfort packs (HCP1 and HCP2) will not be issued. Use the Northeast Asia/temperate environment consumption factors, for planning purposes below ABCT strength is 4,000.

NOTE: General supply formula: REQUIREMENT = STRENGTH * PLANNING FACTOR

Supply Class	Strength	Planning Factor	Daily requirement	Daily ST (2000 lbs)
I	4,000	5.25	21,000	10.5
II	4,000	2.2	8,800	4.4
III(P)	4,000	.51	2,040	1.02
IV	4,000	9.92	39,680	19.84
Mail	4,000	1.34	5,360	2.68
Water	4,000	6.7	26,800 gal	N/A

Figure 4-12. Example Problem Answer.

4-3. FUEL PLANNING (Class III Bulk)

Class III bulk consumption factors. The following tables show consumption planning factors as of from the CASCOM's Planning Data Branch (PDB) July 2006 (with updates through 2009). PDB and OPLOG 8.0 provide the most current estimates for the Army Forces. The source reference codes (SRC) and personnel numbers are from USAFMSA's force management web site, FMSWeb.

Daily Fuel Consumption Data (gals)

SRC	Unit	Strength	Fuel Max	Fuel Avg
01102R000	Combat Aviaton BDE (LT)	2,494	112,777	70,772
01202R000	Combat Aviation BDE (MED)	2,726	114,999	72,107
01302R000	Combat Aviation BDE (HVY)	2,576	119,754	77,632
01285R000	Aviation Attack/Recon BN (AH-64)	402	18,822	14,224
05402R000	Engineer BDE (typical)	128 (HHC)	42,643 (BDE)	40,794
05435R000	Engineer BN	164	13,052	12,171
06402R000	Fires BDE (typical)	156 (HHB)	7,643 (BDE)	7,587
06325R000	FA BN 155T[9], (SBCT) (3X6)	356	3,653	3,653
06385R000	FA BN, 155SP[10] (ABCT)	287	4,293	4,293
06365A200	FA 155SP BN	634	5,689	5,689
06455R000	FA BN, 155SP (SPLIT OPS) (FIRES BDE)	297	4,170	4,170
06475R000	FA BN, HIMARS[11], (FIRES BDE)	239	3,593	3,593
07215R000	Infantry BN (IBCT)	692	2,523	1,737
07215R200	Infantry BN (IBCT) (AIRBORNE)	692	2,833	1,957
07075L000	Infantry BN	650	4,004	2,882
07095R500	Infantry BN (SBCT)	691	4,896	3,191
07205R100	Combined Arms BN (ABCT)	624	18,652	12,873
17095R600	Reconnaissance Squadron (SBCT)	375	3,570	2,118

[9] Towed
[10] Self-Propelled
[11] High Mobility Artillery Rocket System

SRC	Unit	Strength	Fuel Max	Fuel Avg
17205R100	Reconnaissance Squadron (ABCT)	421	4,070	2,107
17375L100	Tank BN	504	14,561	7,195
19645A000	MP Interment/Resettlement BN	151	3,357	3,249
42430R000	QM Supply Company (Modular)	136	1,362	1,295
63302R000	Sustainment BDE (HHC w/ STB)	315	4,491	3,402
49102R000	Battlefield Surveillance BDE(BFSB) (typical)	1,318	12,120	9,137
63105R000	BSB (SBCT)	737	9,459	5,988
63325R100	BSB (ABCT)	1,089	29,201	20,496
63345R100	BSB (FIRES BDE)	250	10,921	6,758
63355R100	BSB Maneuver Enhancement BDE (BSB MEB)	231	5,194	3,246
47102R500	SBCT	4,200	36,253	26,122
77302R200	IBCT	3,461	29,479	20,929
77302R000	IBCT (ABN)	3,461	30,700	21,281
87302R100	ABCT	3,739	78,489	55,999

Figure 4-13. Daily Fuel Consumption Data.

NOTE: The SRCs and unit designations are a direct lift from FMSWeb. The units were selected on best available information to be most closely representative of those required for CGSC/CGSOC course instruction materials. As organizations mature, there will be discrepancies or mismatches within TOE/personnel data for units assigned the same SRC.

Vehicle	Idle	Cross-Country	Road
M1	17.3	56.6	44.6
M2/3	1.4	18.0	8.6
M113	1.0	10.5	8.9
M88	2.0	42.0	31.0
M9 ACE	1.4	12.6	9.3
M109A6	2.2	16.0	11.8
MLRS	1.3	15.0	8.6

Figure 4-14. Vehicle Consumption Rates in GPH.

Fuel storage and distribution systems. The following chart shows unit fuel storage and distribution equipment and capabilities.

Fuel System	Unit	Capacity
Fuel system supply point (FSSP)	POL support company	- 6 ea 10k-gal fabric tanks
Forward area refueling equipment (FARE)	Aviation BSB	- FARE system may be tailored - 6 ea 500-gal fabric drums
Refuel on the move kit (ROM)	TBD under modularity	- 8 rapid refuel points
Drum, fabric, 250-gal	QM pipeline/term company	- 6 ea bags (1,500 gal)
Drum, fabric, 500-gal	FARE system	- 6 ea bags (3,000 gal)
Tank, fabric, 3k	QM pipeline/term company	- 6 ea bags (18,000 gal)
Tank, fabric, 10k	QM pipeline/term company	- 2 ea bags (20,000 gal)
Tank, fabric, 20k	POL support company	- 72 ea bags (2,840,000 gal)

Figure 4-15. Stationary Issue and Storage Equipment/Systems

Distribution System	Capacity
Truck, fueler medium tactical vehicle (MTV)	1,500 gal
5-Ton TPU w/trailer	1,800 gal
HEMTT fueler	2,400 gal
Semi-trailer, 5k	3,800 cross country 4,500 road
Semi-trailer, 7.5k	7,500 gal
Rail car (Europe)	10,500 or 15,800 gal

Figure 4-16. Distribution Equipment and Systems.

Aircraft	AH-64A	AH-64D	OH-58D	CH-47D	UH-60L
Max speed (knts)	170	150	120	170	193
Cruise speed (knts)	120	120	90	120	120
Endurance (hrs)	2.3	2.3	2.0	2.5	2.5
Range (miles/km)	260/430	260/430	180/300	345/575	300/500
Passengers seats (PAX)	NA	NA	1	33	11
Litter evacuation	NA	NA	NA	24	6
Ambulatory evacution	NA	NA	NA	31	7

Figure 4-17. Aviation Planning Factors.

Example. Calculating fuel requirements. Calculate fuel requirements for a reinforced ABCT for 5 days.

NOTE: General supply formula: REQUIREMENT = STRENGTH * PLANNING FACTOR

Unit	SRC	Gallons/Day
ABCT	87302R100	84,537
Tank BN	17375L100	18,717
FA 155SP BN	06365A200	8,054
BDE (+) Total	---	111,308

Figure 4-18. Answer to Fuel Calculation.

All that remains is to complete the calculations:

(111,308 gallons per day) * 5 days = 556,540 gallons

4-4. AMMUNITION PLANNING

Class V bulk consumption factors. The following tables show consumption planning factors as of from the CASCOM's PDB July 2006 (with updates through 2009). PDB and OPLOG 8.0 provide the most current estimates for the Army forces.

Daily Class V Consumption Data (ST)

SRC	Unit	Ammo Max	Ammo Ave
01102R000	Combat Aviation BDE (LT)	36.4	17.2
01202R000	Combat Aviation BDE (MED)	36.4	17.2
01302R000	Combat Aviation BDE (HVY)	118.7	59.6
01285R000	Aviation Attack/Recon BN (AH-64)	100.4	50.9
05402R000	Engineer BDE	2.7	2.0

SRC	Unit	Ammo Max	Ammo Ave
05435R000	Engineer BN	0.2	0.2
06402R000	Fires BDE	278.8	69.7
06325R000	FA BN 155T, (SBCT) (3X6)	37.7	11.8
06385R000	FA BN, 155SP (ABCT)	40.5	12.5
06365A200	FA 155SP BN	40.6	12.5
06455R000	FA BN, 155SP (SPLIT OPS) (FIRES BDE)	45.6	14.1
06475R000	FA BN, HIMARS, (FIRES BDE)	278.8	69.7
07215R000	Infantry BN (IBCT)	0.2	0.1
07215R200	Infantry BN (IBCT) (AIRBORNE)	0.2	0.1
07075L000	Infantry BN	0.4	0.2
07095R500	Infantry BN (SBCT)	0.9	0.4
07205R100	Combined Arms BN (ABCT)	1.4	0.7
17095R600	Reconnaissance Squadron (SBCT)	0.5	0.2
17205R100	Reconnaissance Squadron (ABCT)	0.9	0.5
17375L100	Tank BN	0.8	0.4
19645A000	MP Interment/Resettlement BN	0.1	0.1
42430R000	QM Supply Company (Modular)	0.0	0.0
63302R000	Sustainment BDE	0.1	0.0
49102R000	Battlefield Surveillance BDE (BFSB)	0.2	0.1
63105R000	BSB (SBCT)	0.1	0.0
63325R100	BSB (ABCT)	0.1	0.1
63345R100	BSB (FIRES BDE)	0.1	0.0
63355R100	BSB Maneuver Enhancement BDE (MEB)	0.1	0.0
47102R500	SBCT	41.2	13.5
77302R200	IBCT	20.1	7.2
77302R000	IBCT (AIRBORNE)	20.1	7.2
87302R100	ABCT	44.6	14.6

Figure 4- 19. Daily Class V Consumption Data.

NOTE: These SRCs are a direct lift from FMSWeb. The units were selected on best available information to be most closely representative of those required for CGSC course instruction materials. As transformation or modular organizations mature, there will be discrepancies/mismatches within TOE data.

Moderate intensity multiplier	= 65 percent of heavy
Light intensity multiplier	= 35 percent of heavy

Figure 4-20. Calculating Requirements for Moderate or Light Intensity.

Unit Basic Loads (UBL). The following are suggested typical unit basic loads, stated in rounds per weapon per day reflecting the required supply rate (RSR) per type round. These quantities are obviously subject to modification by the command based on METT-TC and the operational environment. UBL go into determination and preparing of configured loads, a key element to our emerging distribution-based sustainment system. These data can be used to determine supportability of selected ammunition items. These rates are for heavy-intensity combat (NEA). For moderate and light intensity, apply the percentages provided in paragraph 4-4b above.

Ammunition Type	**DODIC**	**Weapon System**	**Basic Load**
25mm, APFSDS-T	A986	CFV M3	425
25mm, APFSDS-T	A986	M2	225
25mm, HEI-T	A975	CFV M3	1,280
25mm, HEI-T	A975	M2	675
30mm, HEDP	B129	AH-64	1,000
120mm, HEAT-MP-T	C787	Tank, 120mm	40
120mm, APFSDS-T	C380	Tank, 120mm	40

Ammunition Type	DODIC	Weapon System	Basic Load
120mm, HE	C379	120mm mortar	75
155mm, RAMMS-S	D514	Howitzer, 155mm	19
155mm, HE	D544	Howitzer, 155mm	18
155mm, dual-purposed improved conventional munitions (DPICM)	D563	Howitzer, 155mm	135
155mm, rocket-assisted projectile (RAP)	D579	Howitzer, 155mm	24
MLRS, DPICM	H104	MLRS	18
Rocket, HE, 2.75	H164	AH-64	38
Hellfire (antitank) (AT)	PU55	AH-64	16
TOW (M3)	PV18	CFV M3	12
TOW	PV18	Infantry Fighting Vehicle (IFV) M2	7

Figure 4-21. Ammunition Unit Basic Loads.

NOTE: The previous ammunition expenditure rates are provided for classroom purposes only and may not be appropriate for all combat operations. RSRs will vary based on METT-TC. *Data for prepared defense and delay are the same as for the attack.*

Calculating ammunition requirements. Determine the impact of a CSR of 2 rds/weapon/day if the G-3 established an RSR of 4 rds/weapon/day for tube-launched, optically-tracked, wire-glued (TOW) (M2). Will the Bradley infantry fighting vehicle (IFV) be able to operate effectively for a 4-day operation? Assume no IFVs losses in the 5-day operation. Assume no stockpiling of CL V and the first Class V resupply arrives on Day 2 (see steps below).

NOTE: General supply formula: REQUIREMENT = STRENGTH * PLANNING FACTOR

Step 1: Determine Class V planning factors.

Unit Basic Load (UBL) = 7 rounds
Required Supply Rate (RSR) = 4 rounds
Controlled Supply Rate (CSR) = 2 rounds

Step 2: Compute requirements versus capabilities.

Day	On Hand (O/H) Start	Resupply	Expend (RSR)	O/H End
1	7	0	4	3
2	3	2	4	1
3	1	2	3	0
4	0	2	2	0

Figure 4-22. Calculating Ammunition Requirements.

O/H Start Day 1 + Resupply – Expend (RSR) = O/H End Day 1 = O/H Start Day2

Step 3. Conclusion. From the end of day 3, the Bradley IFV will have half their TOW RSR, since the RSR is 4 rds and the daily CSR is only 2 rds, therefore their effectiveness may be severely hindered.

4-5. MAINTENANCE PLANNING

NOTE: The latest data for equipment availability can be found at CASCOM PDB or FMSWeb in the applicable table of organization and equipment (TOE).

Loss Rate	M1	M2/3	M109	MLRS	ATK HEL	CGO HEL	Support System
Attack	18%	22%	10%	10%	30%	20%	10%
Delay	25%	27%	15%	18%	20%	20%	15%
Hasty Defense	25%	27%	18%	20%	25%	20%	15%
Preparation Defense	18%	20%	13%	15%	30%	20%	18%
Reserve	10%	10%	10%	13%	25%	20%	10%
Uncommitted	5%	5%	5%	5%	5%	5%	5%
Static	5%	5%	5%	5%	5%	5%	5%

Figure 4-23. Equipment Loss Rates (Percent).

Category	Non-Repairable	Repairable
Attack	20%	80%
Delay	25%	75%
Hasty Defense	30%	70%
Prepared Defense	15%	85%
Reserve	15%	85%
Uncommitted	10%	90%
Static	10%	90%

Figure 4-24. Loss Category by Type Operation.

Repair estimations (based on 4-level maintenance system).

NOTE: *As the Army transitions to a two-level maintenance system (field and sustainment) historical data must be collected or verified to determine availability figures. As an interim estimate, we may assume that the table figures for "Unit," "DS," and a portion of "DS Backup" are combined to estimate "field" maintenance level losses. Whatever estimate assumptions are made, consistency is paramount.*

Estimate	Organizational	DS	DS Backup	Echelons Above Corps (EAC)
Attack	20%	30%	30%	20%
Delay	15%	20%	20%	45%
Hasty defense	15%	25%	30%	30%
Prepared defense	20%	25%	30%	25%
Reserve	25%	30%	30%	15%
Uncommitted	30%	30%	20%	20%
Static	30%	30%	20%	20%

Figure 4-25. Level of Maintenance Distribution of Equipment Failures.

Helicopter	All Conditions
Repair on site	20%
Repair at aviation unit maintenance (AVUM)	30%
Repair at aviation intermediate maintenance (AVIM)	30%
Evacuate to the theater army (TA) AVIM	20%

Figure 4-26. Helicopter Repair Estimates (for Repairable Items) (Percent).

Example: Calculating materiel loss data (estimating losses). Calculate an armored division's battle losses for M1 tanks for a three-day offensive operation. What impact has this on future operations? Assume 100 percent equipment availability on Day 1. Assume equipment is returned to units from org/BDAR maintenance in one day. Assume equipment is returned from DS maintenance in two days.

Answer.

NOTE: While this example uses pre-modularity units, the methodology is identical for new/emerging TOEs.

Step	Task	Data	Remarks
1	Determine tanks assigned	5 AR battalion @ 58 M1s = 290 1 Cavalry Squadron @ 27 M1 = 27	Total: 317
2	Determine repairable distribution	Repairable distribution: -On Site/Org= 20% -DS Maint = 30% -DS Backup = 30% -EAC = 20%	Loss rate day 1 = 18% Subsequent days = 18% Repairable = 80% Non-repairable = 20%

Step	Task	Data	Remarks
3	Calculate losses for Day 1	317 tanks x 18% = 57 tanks lost	260 remaining end Day 1 OR = 82%
4	Determine repairable distribution	57 tanks lost x 80% = 46 tanks repairable	Repairable distribution: -On Site/Org = 20% = 9 -DS Maint = 30% = 14 -DS Backup = 30% =14 -EAC = 20% = 9
5	Calculate losses for Day 2	260 tanks x 18% = 47 tanks	213 remaining end Day 2 OR = 67%
6	Determine repairable distribution	47 tanks lost x 80% = 38 tanks repairable	Repairable distribution: -On Site/Org = 20% = 8 -DS Maint = 30% = 11 -DS Backup = 30% = 11 -EAC = 20% = 8
7	Add back equipment returned from maintenance	213 tanks + 9(On Site/Org Day 1) = 222 end Day 2	222 start Day 3 OR = 70%
8	Calculate losses for Day 3	222 tanks x 18% = 40 tanks lost with 182 tanks remaining	182 remaining Day 3 OR = 67%
9	Determine repairable distribution	40 tanks lost x 80% = 32 tanks repairable	Repairable distribution: -On Site/Org = 20% = 6 -DS Maint = 30% = 10 -DS Backup = 30% = 10 -EAC = 20% = 6
10	Add back equip-ment returned from maintenance	182 tanks + 6 (On Site/Unit Day 2) +14 (DS Day 1) = 202 tanks at the end of Day 3	202 remaining end Day 3 OR = 64%

Figure 4-27. Estimating Materiel Loss Percentages.

4-6. TRANSPORTATION PLANNING

General planning factors. The following factors are used in transportation planning to compute vehicle and truck company requirements (for instructional purposes only). Terrain, weather, and enemy activity may affect these factors.

Vehicle Availability: (Also see planning figures in Section 1 TOE data)
Short Range Planning: 83 percent (use only for all-out effort less than 30 days)
Long Range Planning: 75 percent

Daily Round Trips (Average):
Line Haul: 1 trip/day (one/shift) *@ 144 km (90 miles) one way per operating shift*
Local Haul: 2 trips/day (two/shift) *@ 32 km (20 miles) one way per operating shift*

Average Km/Miles in an Hour:
Poor Roads: 16 km (10 miles) in the hour
Good Roads: 32 km (20 miles) in the hour

General transportation planning example.[12] Based on theater level initial mission analysis, logistic planners estimated the following gross tonnage requirements needed to sustain operations as well as the probable physical layout of support areas connecting supply routes from the theater base forward into the combat zone. Armed with the lift estimated requirements and the distances involved more definitive and refined transportation planning becomes possible.

Work aids, such as those below, assist logistic planners in completing their analysis, develop, and evaluate courses of action in assembling an effective and efficient supply and distribution system to sustain operations. The chart in figure 4-28 shows the lift and tonnage requirements and the distances involved as well as the points of origin and destinations. This is information is portrayed graphically in the network sketch in figure 4-29.

Requirements Estimate Example (Short Ton [ST] and 20' containers)

Origin	*Destination*	*Distance*	*STONs*	*Containers*
Red Port	**LSA #1**	**345 km**	**1,200**	**100**
Red Port	**LSA #2**	**505 km**	**900**	**50**
LSA #1	**LSA #2**	**160 km**	**700**	**---**
Bravo Beach	**LSA #1**	**350 km**	**500**	**---**

Figure 4-28. Requirements Estimate Table.

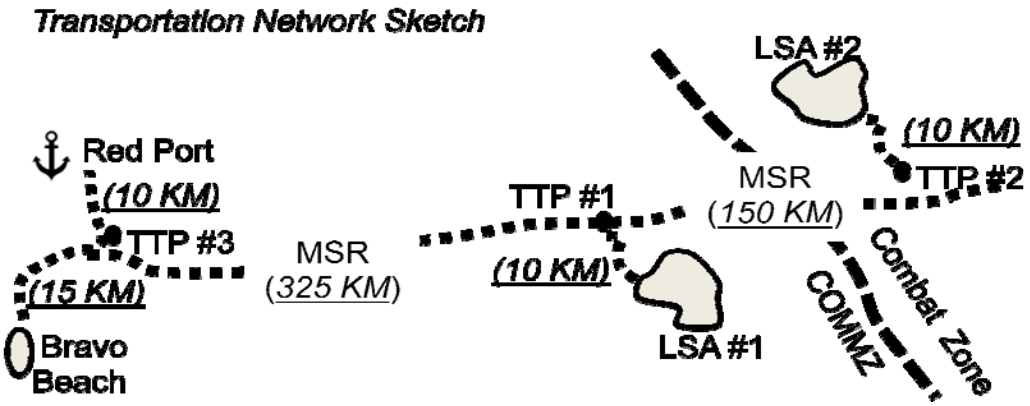

Figure 4-29. Transportation Network Sketch.

[12] US Department of the Army, FM 55-15, *Transportation Reference Data*, Chapter 3 (Washington DC: HQDA, 27 Oct 1997). This example and the included charts/diagrams are a direct lift from the field manual.

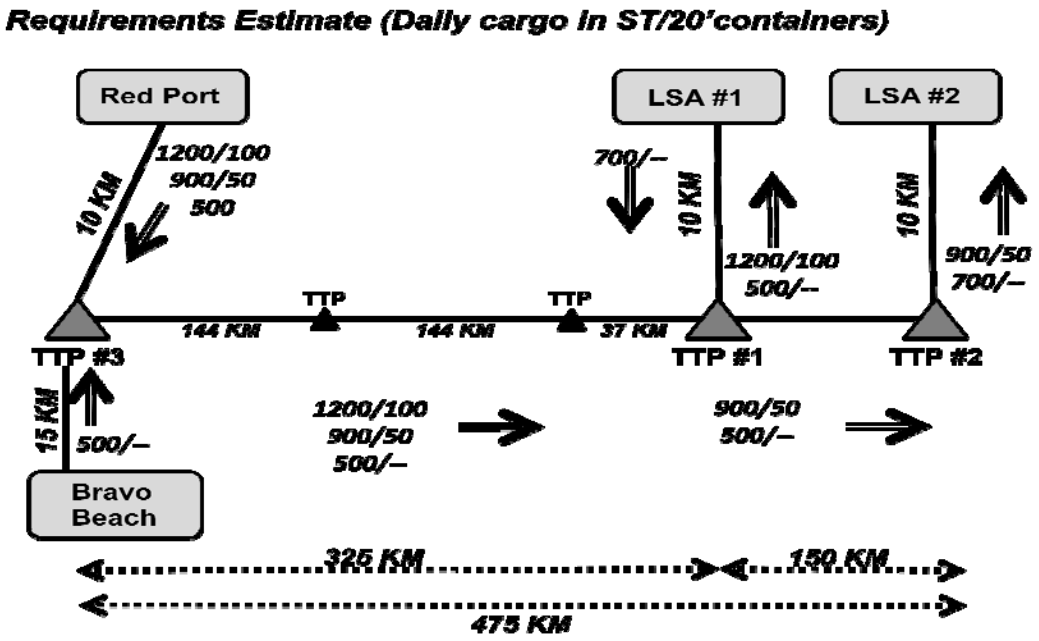

Figure 4-30. Requirements Estimate Sketch.

Combining these tonnage and distance data, logistic/transportation planners assemble a workload model, or diagram as shown in Figure 4-30. Such a requirements sketch, along with the supporting data estimates, aids planners in determining and assembling the units and other necessary resources. Planners can workload the material and transportation requirements against the designed (read "TOE") capabilities of logistical units by type.

For example, the route leg between TTP #3 and TTP #1 is further subdivided by additional TTP. Why?—because truck units designed for "line haul" are equipped with two trailers for every tractor for long-distance hauling efficiency. Furthermore, the subordinate TTPs are placed at a proper distance to maximize the number of round trips per shift or within a given period of time. Knowing the daily planning quantities of in/out bound cargo planners can match the cargo by type against capabilities of logistical functional units to load/unload store, issue and maintain stocks. Applied critical thinking and close consideration of such a "requirements sketch" quickly demonstrates and illuminates the time-distance and physical aspects of the relationship and dramatic significance of logistics to the concept of operational reach.

Transportation Planning Factors

Unit	SRC	Task	Vehicle	Avail	Daily Lift Local/Line
Light-Medium Truck Company	55719R000	General Cargo	FMTV	86%	388/193 ST
		Ammunition	FMTV	86%	694/347 ST
		General Cargo	Container, 5-ton ST, 20-ft	85%	32/16
		Personnel	FMTV	86%	1,020/510
Medium Truck Company	55727R100	General Cargo	Container, 5-ton ST, 40-ft	85%	102/51
		General Cargo	Container, 5-ton ST, 20-ft	85%	204/102
		General Cargo	ST flatbed, 5-ton	85%	760/380 ST
		Ammunition	Semi-trailer, 5-ton	85%	1,364/682 ST
		General Cargo, Pallets	Semi-trailer, 5- ton	85%	1,836/918
		General Cargo, 463L	Semi-trailer, 5- ton	85%	408/204
		Water	Semi, 5-ton, 3k SMFT	85%	280K/140K gal
		Water	Semi, 5-ton, 5k SMFT	85%	466K/233K gal
		Water	Semi, 5-ton, HIPPO	85%	408K/204K gal
		PAX (Emg Cond Only)	Semi-trailer, 5- ton	85%	5,100/2,550
POL Truck Company (5k)	55728R200	POL	5-ton ST 5k gal	87.5%	1,050K/525K gal
POL Truck Company (7.5k)	55727R200	POL	5-ton ST 7.5k gal	87.5%	780K/390K gal
Medium Truck Company, Palletized Loading System (PLS)	55728R300	General Cargo	Container, PLS 20-ft	90.5%	216/108
		General Cargo	PLS	90.5%	762/381
		General Cargo	Pallet cargo, PLS	90.5%	1,728/864 ST
		General Cargo	Pallet 463L, PLS	90.5%	432/216
		Water	PLS, HIPPO	90.5%	432K/216K gal
		POL	PLS, MFS	90.5%	540K/270K gal
		Ammunition	PLS	90.5%	1,370/685 ST
Combat HET Company	55739R100	Vehicle	One-time lift	90%	86 tracked veh.
		Vehicle	HET: M1 tank	90%	172/86
		General Cargo	HET	90%	12,040/6,020 ST

Figure 4-31. Transportation Planning by Unit Lift Capacity.

Truck/trailer capacity	Length	Width	Pallets	ST
M 989A1 HEMTT trailer	216	90	8	11
M 977/985 HEMTT truck	216	90	8	11
PLS flatrack	240	96	8	16
M 871 22.5T trailer	348	90	14	22.5
M 872 34T trailer	484	90	18	34

Figure 4-32. Transportation Planning Factors by Equipment Type.

NOTE: Number of pallets based on 40" x 48" standard wooden pallets. Specific Class V, barrier, or Class IX pallets may differ.

Aircraft Capacity	Combat Load (lbs)	Cargo Hook (lbs)	Max GW(lbs)	Troops
UH-60A	14,086	8,000	20,250	12
UH-60L	14,250	9,000	22,000	13
CH-47D	30,000	26,000	50,000	33

Figure 4-33. Transportation Planning Factors: Aviation.

Example. A sustainment brigade's support operations officer (SPO) is planning transportation support for an operation with these daily requirements:

5,000 ST general cargo
900,000 gallons water
750,000 gallons CL III(B)
4,000 ST palletized CL V mission configured load (MCL)
2,100 ST breakbulk CL V

General cargo, water, and CL V stocks are located within local haul distance, however, the CL III(B) must be line hauled. How many transportation companies (by type) are required to support this operation?

Answer. Here is one of many solutions.

General, 5,000 ST: 6 each, light-medium truck company (5t cargo); or, 5 each, lt-medium truck company (5t ST); or 3 each, medium truck company (5t ST)
Water, 900K gal: 1 each, medium truck company w/4k SMFT
POL,750K gal: 1 each, POL truck company, 7.5k
Ammunition, 4,000 ST PLS MCL: 1each, medium truck company/PLS
Ammunition, 2,100.ST; 1 each, medium truck company

4-7. MOVEMENT PLANNING

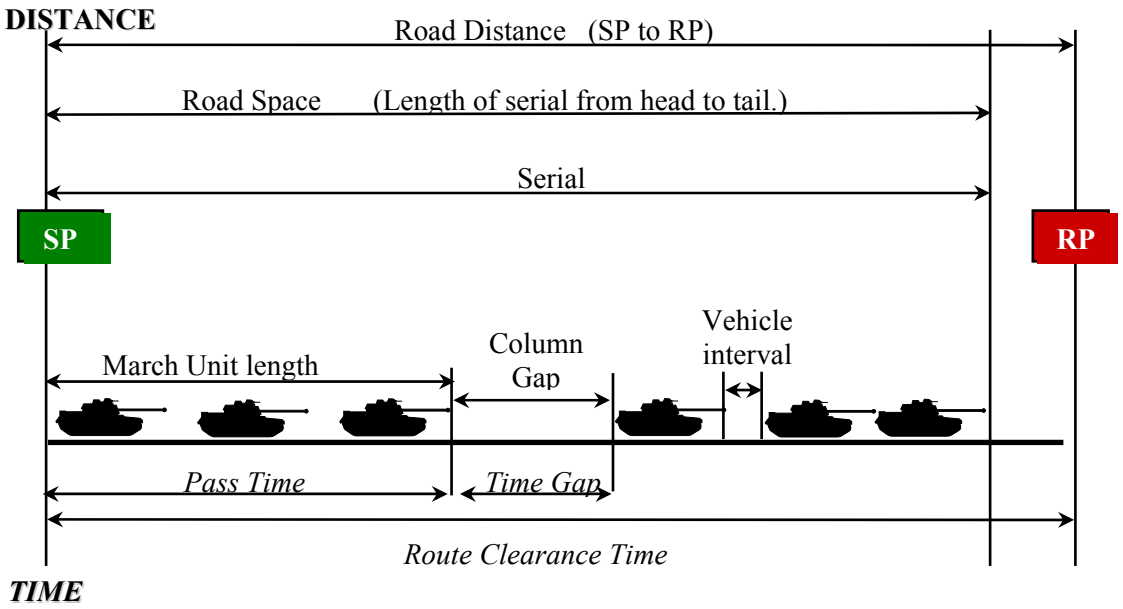

Figure 4-34. Movement Planning Factors.

General.

Effective staffs at BCT through corps must understand the complexity involved in moving large formations, the amount of road space such formations require, their rates of fuel consumption, and other considerations for such movements under varying conditions and circumstances.

The fighting power and tactical flexibility of heavy/motorized formations depends fundamentally on their ability to move and do so efficiently. Efficiency, control and coordination become more important than raw speed. Corps, divisions and brigade combat teams are powerful weapons when they can move, deploy, and maneuver quickly in fluid situations. To realize this potential, they must have the space to march and maneuver along multiple routes and avenues of approach and have sufficient march time allotted.

Moving a typical corps by tactical road march involves moving some 25,000 vehicles, which at a 100-meter vehicle interval would require 2,500 kilometers of road space. The pass time on a single route at 25 KPH, even without march units and serial gaps, would be more than 4 days. Conducting tactical operations, units must march on multiple routes at the greatest speed, making the most economical and efficient use of road space. Increasing the number of routes adds flexibility and speed, although mutual support among moving formations must be assured. Economizing road space requires greater vehicle density on routes in use, a function of shorter intervals between vehicles, march units, and serials.

A corps can reduce its movement time and accelerate its deployment by:

- Utilize divisional columns with 4 assigned routes per division (considered the minimum standard).
- Increase the rate of march to 30 KPH.
- Reduce vehicle interval to 50 m.
- Reduce march unit gaps to 2 minutes (1,000m @ 30 KPH) and serial gaps to 5 minutes (2,500 m @ 30 KPH).

Using some of these alternatives, the corps column length, pass time, and deployment time become significantly more manageable. Under these conditions, the 25,000 corps vehicles still occupy the same 2,500 kilometers of road space (1,250 km occupied road space plus 1,300 km of gaps). However, the corps' march formation depth is reduced to 320 km along each of its 8 routes. Total pass time is reduced from 96 hours to 10.5 hours. Divisions (approximately 6,000 vehicles) marching over 4 routes would average 155 km per column and would pass in just over 5 hours.

Divisional and BCT Tactical Road Marches

Vehicle counts. The total number of vehicles in a modular division can reach as high as 5,300. With the normal addition of support vehicles the total increases to around 6,000. A generic ABCT has roughly 1,273 vehicles, while the SBCT has 1146 vehicles. Sustainment brigades are the largest brigades, numbering some 2,003 vehicles. A task organized modular division of 2 ABCTs, 1 SBCT, a sustainment brigade, and a fires brigade would number around 6,086 vehicles.

Road space. Without counting rest halts, extra time allowance (EXTAL), march unit and serial gaps, and assuming a 100-meter vehicle interval, the modular division requires about 600 km of road space, the ABCT is about 126 km in length. With two routes available these distances are reduced to 300 and 63, respectively. See Figure 4-34, *Movement Planning Data.*

Refuel requirements. If the length of a divisional march requires refueling, this can normally be done efficiently with a refuel on the move (ROM) along the route. Generally only tracked vehicles are fueled at a ROM. Each refueling will add 20-30 minutes to the march route time and will increase the column length by approximately 10 km.

Road march times. March times now can be easily determined with computer software which addresses all necessary planning factors. Divisions and BCTs can routinely sustain a rate of march of 32 KPH (20 MPH) in daylight and 16 KPH (10 MPH) at night. These sustained march rates include time for rest and maintenance halts. The practical maximum planning range for a division or BCT is about 200 km per day.

NOTE: There is an important difference between "rate of march" and "march speed," which often confuses planners in correctly calculating the time required for a given movement. See the definitions below and know the difference!

Who does movements planning?

There often is considerable confusion, or at least debate, over staff responsibility for planning road marches. This is generated to large degree by peacetime administrative and safety requirements for military road movements and our doctrinal terminology that separates movements into two types: administrative and tactical road marches. Dealing with these requirements (usually as administrative marches) are generally the responsibility of professional transportation staff officer experts and other logistical staff offices such as the DTO or post movements section. These same "experts" often then mistakenly draw staff responsibility for tactical movements undertaken in large exercises and/or actual operations. History demonstrates this is not uncommon until the first critical tactical marches are undertaken. Then the operational staff (read G-3/S-3) takes over staff responsibility and are properly ASSISTED by transportation officers, movements planners/controllers, and staff logisticians.

Planners at all levels must understand the intricacies of movements planning and execution. Every G-3/S-3 section must know the road space and time distance requirements of their units. Such information is every bit as critical as knowing the lateral space needed to deploy combat units and the size needed for assembly areas, logistical support areas, and the size of sector a given unit can be expected to defend successfully.

Unit	M1/M2/ M3	SP WHL LESS 2.5Ts	Tracked	SP WHL 2.5T +	SP WHL Const	SP WHL MHE	Grand Total
1 MEB		1,032	163	835	37	6	2,073
11 Air Defense Artillery (ADA)		515		362		7	884
1-10 IBCT		741	2	199	1	7	950
1-25 SBCT		492	14	615		8	1,129
1-4 ABCT	58/58/29	561	269	317	16 (ARTY)	7	1,315
142 SG BDE		773		83			856
2 CR SBCT		488	6	614		8	1,116
212 FIRES BDE		433	74	354		7	868
228 SG BDE		625		43			668
244 AVN BDE		275		180	5	14	474
303 CA BDE		97		4		2	103
3-4 ABCT	58/58/29	561	269	317	16 (ARTY)	7	1,315
4 CAB		583		310	9	27	929
4 SUST BDE[13]		750	11	1,054	8	100	1,923
48 CM BDE		278		251			529
48 IBCT		738	2	199	1	7	947
504 BFSB		315		73		1	389
513 MI BDE		336		51		2	389
38 SUST BDE		786	10	1,590	3	148	2,537
62 MED BDE		426		103		23	552
7 SUST BDE		826	13	1,372	5	311	2,527
71 OD GRP		27					27
82 CAB		461		239	7	23	730
89 MP BDE		420		64			484
937 EN GRP		579	301	929	147	10	1,966
Grand Total	290	13,118	1,134	10,158	223	725	25,680

Figure 4-35. Convoy Vehicle Densities.

NOTE: Units listed in Figure 4-35 are from a previous Annex A to JTF CASPIAN OPORD (CASPIAN GUARD) 49991-17 TASK ORGANIZATION (U), and vehicle type/numbers have been verified by LIN and unit SRC data. Units and vehicle type and density can be updated and used in movement planning calculations utilizing S2MC or the formulas provided on page 4-23, based on the following input and assumptions:

March Units = 20 vehicles (roughly maneuver company equivalent).
Serial = 5 MU (roughly maneuver battalion equivalent).
Day Rate of March = 20 MPH (32 KPH) @ 100 m interval, 10 Vehicles Per Kilometer (VPK); 50 m interval (20 VPK).
Night Rate of March = 10 MPH (16 KPH) @ 25 m interval (40 VPK).
20-minute halts every 4 hours.
No ROM.
Serial Gap = 10 min.
March UnitGap = 5 min.
EXTAL = 5 minutes per 25 vehicles.

[13] sustainment brigade

Terms. Below are the doctrinal terms for movements.

Arrival time: Head of column reaches the start point (SP).

Clearance time: Tail of column reaches the release point (RP).

Density: Average number of vehicles per kilometer.

Extra time allowance (EXTAL): Time added to allow for unforeseen delays and the accordion effect during movements (usually expressed as a number of minutes per every 25 vehicles in the element).

March column: Elements using the same route for a single movement under a single commander.

March unit (MU): Major subdivision of a serial, usually a company-sized element of 20 to 25 vehicles.

March unit gap (MUG): Gap between the tail of one MU and the head of the next MU within a serial [expressed as a distance (MUG) or time (MUGT)].

Pass time (PST): Total time required for an entire element (MU, serial, column) to pass single given point.

Rate of march: Average distance traveled in a given period of time. This is correctly expressed as "kilometers in the hour." (See "Transportation Planning," section 4-6). It is usually given as "KPH," a technically incorrect usage of the term which confuses rate of march with march speed. These are two different terms. The march speed is usually higher. A column march speed may be planned at 40 km/hour to achieve a rate of march of 32 km in the hour.

Road clearance time: Time from first vehicle departing the SP to the last vehicle arriving at the RP.

Serial: Major subdivision of a column, usually a battalion-sized element of 5 to 20 MU.

Serial gap (SG): Gap between the tail of one serial and the head of the next serial within a column serial [expressed as a distance (SG) or time (SGT)].

Speed: The planed velocity of the lead vehicle. It is often confused with "rate of march."

Time distance (TDIS): Time required to move from one point to another at a given rate of march.

Vehicle interval: Space between vehicles in a column.

Formulas

Basic movement formula: Distance = Rate x Time (D = R x T)

Pass Time (PST): PST = (# vehicles x 60) / (density x speed) + EXTAL + (# SG x SGT) + (# MUG x MUGT). This calculation is quickly done by movement calculators or spreadsheets.

Time Distance: TDIS = distance (km)/ rate of march (km per hour)

Road Clearance Time: ((TDIS + 60) + PST)/160

# of MUG: (# MU - # serials)

# of SG: (# serials – 1)

Conclusion. The increased pace of modern combat, mastery of the tactical march, and the quickest deployment for combat action are more vital to warfighting. Commanders through corps must recognize this importance and organize their sustainment assets to support their movement and sustain their ability to march to maximize combat power and achieve tactical success.

4-8. HUMAN RESOURCES PLANNING

Daily soldier loss rates (percentages). Apply loss rates against the unit's present for duty (PDY) strength.

Operation	Counter Reconnaissance or Breach	Day 1: Decisive Operations	Succeeding Days
Offense:			
-DIV/BCT in contact	.007	.04	.02
-DIV/BCT not in contact	.001	.002	.0001
-EAD	.0003	.0004	.0001
Covering Force:			
-DIV/BCT in contact	.005	.02	.014
-DIV/BCT not in contact	.001	.002	.0001
-EAD	.0002	.0002	.0002
Defense:			
-DIV/BCT in contact	.009	.05	.03
-DIV/BCT not in contact	.001	.002	.0001
-EAD	.0004	.0005	.0002
Retirement/Delay:			
-DIV/BCT in contact	.03	.02	.02
-DIV/BCT not in contact	.03	.02	.0001
-EAD	.0002	.0004	.0001
Offense:			
-DIV/BCT in contact	.007	.04	.005
-DIV/BCT not in contact	.001	.002	.0001
-EAD	.0003	.0004	.0001

Figure 4-36. Daily Soldier Loss Rates.

NOTE: Losses in non-divisional units within a divisional or BCT AO are identical to the surrounding units. The following casualty rates are figures extrapolated from the Chairman, Joint Chiefs of Staff Guide 3161, *CJCS Guide to Battle Casualty Rate Patterns for Conventional Ground Forces*. These rates are for CGSC classroom use only and are not suitable for operational planning as the CJCS Guide 3161 is designed for corps and multi-corps casualty estimations.

	BCT/Division AO	EAD
Killed	18%	16%
Wounded	80%	84%
Missing	2%	negligible

Figure 4-37. Losses by Type (percentage of total losses).

Distribution of losses.

Combat arms: 92.1 percent
All others: 7.9 percent

Example. Soldier casualty estimates. Calculate the total losses, distribution of losses and ending troop strength for a division of 15,000 soldiers present for duty (PDY) during an offensive operation in Iraq after Day 1 (decisive operation). Assume the division receives 50 replacements per day starting on Day 1 of the decisive operation and WIA soldiers that return to duty (RTD) do so within 24 hours of being treated at Role I/II medical facilities.

STEP	NOTES/Actions
Step 1. Determine casualty rates:	Type of Operation: Offense Counter Recon/Breech Rate: .0007 Decisive Operation Day 1 Rate: .04 Succeeding Days Rate: .02
Step 2. Calculate Day 1 casualty estimate:	Counter Recon or Breech Estimate: 15,000 x 0.007 = 105 Casualties = 14,895 PDY Decisive Operation Day 1 Estimate: 14,895 x 0.04 = 596 Casualties
Step 3. Calculate casualties by type:	Ctr Recon/Breach / Dec Ops (Day 1) KIA (18%): 105 x 0.18 = 19 / 596 x 0.18 = 107 WIA (80%): 105 x 0.80 = 84 / 596 x 0.80 = 477 MIA (2%): 105 x 0.02 = 2 / 596 x 0.02 = 12
Step 4. Determine disposition of WIA:	Ctr Recon/Breach / Dec Ops (Day 1) RTD (20%): 84 x 0.20 = 17 / 477 x 0.20 = 95 EVAC (80%): 84 x 0.80 = 67 / 477 x 0.80 = 382

STEP	NOTES/Actions
Step 5. Determine other losses/gains:	*Gains:* Replacements on Day 1 = 50 *Losses:* Disease and non-battle injury (DNBI) Losses Day 1 = 29
Step 6. Determine PDY at end of Day 1: Note: The RTDs were added back to the total PDY because they are not considered a loss to the division until they are evacuated to a corps hospital. It is important to note that many units will not consider RTDs in their PDY number until the soldier is returned to their unit from the medical system within the BDE or division.	Start PDY (15,000) – KIA (126) – MIA (14) – Total WIA (561) – DNBI (29) + RTDs (112) + Replacements (50) = **14,432 Soldiers PDY at end of (Day 1) Decisive Operation**

Figure 4-38. Soldier Casualty Estimation.

4-9. HEALTH SERVICE SUPPPORT PLANNING

HSS consists of ten interrelated functions. These HSS functions are: treatment as far forward as possible; evacuation; hospitalization; preventive medicine; combat operational stress control; veterinarian services; laboratory services; medical logistics; dental services and mission command.

Four roles of care make up the HSS system, extending from the point of wounding or injury, to the echelon of care that possesses the necessary equipment and/or staff. Each succeeding echelon possesses the same treatment capabilities as those echelons forward and adds an expanded capability.

Role I	Unit level; includes self aid/buddy aid, and emergency lifesaving.
Role II	Care by a medical company staffed with physicians and physician's assistants (PAs), medics, technicians, and nursing staff. Treatment includes basic resuscitation and stabilization and may include surgical capability. This is the first echelon where blood is available for transfusion.
Role III	Combat zone care requires hospital clinical capabilities. Typically a combat support hospital (CSH) is staffed and equipped to provide resuscitation, initial wound surgery, and post operative treatment.
Role IV	Care in a theater area fixed medical treatment facility (MTF). Clinical capabilities provide not only a surgical capability as in Role III, but also further therapy for patients in the recovery phase who can return to duty within the theater evacuation policy. Role IV care also includes convalescent, restorative, and rehabilitative care provided by DOD, VA, and civilian hospitals in the continental United States (CONUS).

Figure 4-39. HSS Roles/Levels Echelons.

Role	Unit	Holding (Cots)	Beds	OR Tables	Dental
I	Self-Aid/Buddy-Aid, CLS, Medic, Battalion Aid Station (BAS)	--	--	--	--
II	BSB Medical Company, Area Support Medical Company (ASMC) Forward Surgical Team (FST)	40 2	-- --	-- 2	Yes --
III	Combat Support Hospital	--	248	8	Yes
IV	Definitive Care	--	Varies	Varies	Yes

Figure 4-40. HSS Roles Units and Capabilities.

NOTE: The 248-bed CSH consists of two companies (84-bed and 164-bed). A 44-bed early entry hospitalization element (EEHE) is found within the TOE of the 84-bed company. The 44-bed EEHE is 100 percent mobile; however, the remainder of the CSH requires external transportation support for mobility. The CSH is not split-based capable unless augmented with additional personnel and major hospital components (medical material sets).

Modular medical elements. Six modules have been designed for Role I and II care to enable planners to rapidly tailor, augment, and reinforce or reconstitute units. These modules are in all medical units organic to the division and in area support medical companies within the corps.

Role	Equipment/Soldiers
Combat Medic	Medic w/aid bag.
Ambulance Squad	2 Ambulances and 4 medics (M997 high-mobility multipurpose wheeled vehicle [HMMWV] or M113).
Treatment Squad	- In unit's battalion aid station (BAS). - Squad has 2 treatment teams (Trmt Tm) of 4 soldiers (1 doctor or PA and 3 medics) w/medical equipment sets. - Heavy forces use M577s; light forces use tents for their BAS. - The brigade support medical company (BSMC) ranges from 3-5 treatment teams. Two teams are equipped identical to BASs to facilitate reconstitution. They may also be employed throughout the BDE area to provide area support. -The third and fourth BSMC treatment team establishes the medical company's clearing station, which, when augmented, constitutes Role II care.
Area Support Squad	- 4 Persons (dentist; dental assistant; X-ray tech; lab tech). - Essential module of Role II care.
Patient Holding Sqd	- Essential module of Role II care. - 4 Soldiers (2 ea medics; 2 nurses). - 40-Cot capability (ABCT) (can be split into 2 teams with 20 cots each) – (20-cots in IBCT and SBCT). - Provides limited convalescent care for soldiers who will RTD within 72 hours.
FST (Role II asset)	- Emergency initial surgery and limited post operative care for up to 10 patients per day or 30 patients over a 72-hour period. - FST is a 100 percent mobile surgical capability that can operate forward in BCT area. - 20 Soldiers (4 MC, 5 AN, 1 MS, and 10 medical technicians). - Equipped with 2 OR tables, 6 HMMWS w/trailers and UBL of equipment sets, power generation and Class VIII. - Capable of split-based operations by forming 2 forward surgical elements, although only one element will have an orthopedic surgeon.

Figure 4-41. Modular Medical Elements.

Casualty evacuation assets.

Ground Ambulances

Army Ground Vehicles	Litter	Ambulatory	Combination
996 HMMWV truck ambulance	2	6	1 Litter/3 Ambulatory
M997 HMMWV truck ambulance	4	8	2 Litter/4 Ambulatory
M1010 truck ambulance	4	8	2 Litter/4 Ambulatory
Bus, motor, 44-passenger	18	37	--
M113 Armored personnel carrier	4	10	2 Litter/5 Ambulatory
M998 HMMWV (2-man)	5	--	--
M998 HMMWV (4-man)	3	4	--
M1113 Stryker medical evacuation vehicle	4	6	2 Litter/3 Ambulatory
M900-series cargo truck	12	16	--
M977 HEMMT cargo	9	--	
M871 30-foot semi-trailer, cargo	16	--	
M1081 (LMTV) 2½-ton cargo	7	12	
M1085 MTV (Long) 5-ton cargo	12	22	
M1093 MTV (Air) 5-ton cargo	8	14	

Figure 4-42. Ground Ambulances.

Army Rotary Wing	Litter	Ambulatory	Combination
HH-60Q w/o hoist	6	7	4 Litter/1 Ambulatory
HH-60Q w/hoist	4	4	4 Litter/1 Ambulatory
CH-47 Chinook	24	31	Multiple Configurations

Figure 4-43. Army Rotary Wing Aircraft.

U.S. Air Force (USAF) Aircraft	Litter	Ambulatory	Combination (Standard Configuration)
C-130 Hercules	74	92	50 Litter/27 Ambulatory
C-5 Galaxy	0	70	Max for each type patient
C-17A	36	54	Max for each type patient
KC-135 and KC-10	8	24	Max for each type patient
U-21 Ute	10	3	3 Litter/3 Ambulatory
C-12 Huron		8	
CRAF Boeing 767	111	22	87 Litter/22 Ambulatory

Figure 4-44. USAF Aircraft.

USN Ship/Watercraft/Aircraft	Litter	Ambulatory
Hospital ships (Mercy/Comfort) [Role III]	1,000	1,000
Amphibious ship (LHD) [Role II] [Role III]	604 60	604
Amphibious ship (LHA) [Role II] [Role III]	367 60	367
Amphibious ship (LPD) [Role II] [Role III]	14 6-8	14
Amphibious ship (LSD) [Role II] [Role III]	108 6-8	108
CH-46 Sea Knight helo	15	25
CH-53D Sea Stallion	24	55
V22 Osprey	12	24

Figure 4-45. USN Ships/Watercraft/Aircraft.

Estimation of patient workloads. Soldier casualty rates are estimated by the S-1/G-1, including KIAs, MIAs, WIAs, and DNBI. The HSS planner estimates patient requirements for WIA and DNBI. Army Medical Department (AMEDD) Center and School has developed two automated estimation tools.

These tools are experimental. The Army casualty estimator (ACE) is intended for use by planners at the division and below. It will generate patient estimates and medical planning data that are useful during mission analysis and wargaming. Although based on doctrine and research. ACE is not authoritative—it is an *estimation tool*.

DNBI estimate (using DNBI calculator—Office of the Surgeon General).

The DNBI calculator is used to estimate daily DNBI hospital admissions. The chart lists country rates divided into 5 operational categories. To compute: multiply population at risk (PAR) x the rate/1,000. Units may comprise multiple categories.

Example: Division = 25,000 in Iraq.

15,000 x 2.09 (Cat 1 rate)/1,000) = 31.35

10,000 x 1.48 (Cat 2 rate)/1,000) = 14.80

TOTAL = 46.15 or 47 (rounded up)

Location\Type of Operation	**1**	**2**	**3**	**4**	**5**
U.S.	0.65	0.46	0.35	0.27	0.20
Bosnia	1.74	1.23	0.94	0.73	0.54
Columbia	2.00	1.41	1.08	0.83	0.62
Egypt	2.00	1.41	1.08	0.83	0.62
Germany	0.76	0.54	0.41	0.32	0.24
Grenada	1.64	1.16	0.89	0.68	0.51
Iraq	2.09	1.48	1.13	0.87	0.65
Japan	0.86	0.61	0.46	0.36	0.27
Jordan	1.70	1.20	0.92	0.71	0.53
Kuwait	1.51	1.07	0.82	0.63	0.47
North Korea	1.97	1.40	1.07	0.82	0.62
Saudi Arabia	1.57	1.11	0.85	0.65	0.49
South Korea	1.52	1.08	0.82	0.63	0.48
Somalia	2.62	1.85	1.42	1.09	0.82
Turkey	1.77	1.25	0.96	0.74	0.55
Zaire	2.70	1.91	1.46	1.13	0.84
Rate after in AO past 60 days	**0.65**	**0.46**	**0.35**	**0.27**	**0.20**

Figure 4-46. DNBI Calculator Chart.

1	Combat forces in high intensity operations in division area.
2	Combat forces in division area during periods of less than high intensity operations and support forces in division rear during all periods.
3	Combat forces not in the division area and all forces in rear staging/assembly areas.
4	Echelon-above-division support forces are not in the division rear.
5	All types of forces in stability operations and support operations (e.g., Bosnia, Haiti) where commanders have strict control of their troop living environment. Strict control consists of: no alcohol; minimal contact with indigenous population; and all food/water procurement, storage and preparation under supervision of preventive medicine (PM) personnel.

Figure 4-47. Legend for Operation Types.

Historical gross planning factors are useful in estimating patient workload.

Estimate number of WIA casualties that result in a hospital admission. Historically, 80 percent (0.80) of all WIA casualties require Echelon III hospitalization while the remaining 20 percent will return to duty (RTD) after Role I/II medical treatment.

Example: (G-1/S-1 estimates that there will be 240 WIAs)
240 x 80 percent = 192 patients (pts) will result in a Role III hospital admission.
x 20 percent = 48 patients will be treated and RTD at Echelon I and II w/in 1 to 3 days

Estimate EPW patient requirements (FM 8-55, *Planning for Health Service Support,* 09 SEP 94). Historically, 4 percent (0.04) of all EPWs captured result in a hospital admission. Note: It is important that medical planners seek medical intelligence regarding the health of the enemy force. Knowledge of diseases endemic to the AO and the physical condition of enemy forces will be necessary in anticipating the additional medical requirements resulting from the capture and confinement of EPWs. Additionally, preventive medicine protective measures must be considered for medical providers, guards, and military police (MPs) that are responsible for EPW patient (pts) care and confinement.

Example: 500 EPWs per day are estimated for a decisive operation.
(EPW estimate) x 4 percent = EPWs resulting in a hospital admission (Role III)
500 x 0.04 = 20 EPW pts/day

Estimate FST surgical requirements at Role I/II (FM 4-02.25, *Employment of Forward Surgical Teams, Tactics, Techniques, and Procedures,* 28 March 2003):

Historically, 10 to 15 percent of all WIA battle casualties require urgent surgical intervention before being evacuated to a hospital. A forward surgical team (FST) provides this urgent surgical capability to the division.

Example: (1 day WIA estimate = 400)
400 x .10 = 40 urgent surgical patients.
400 x .15 = 60 urgent surgical patients.
Result: 40 to 60 soldiers will require FST support during this operation.

Class VIII estimate (population/patient-based methodology). AMEDD combat developments (4-step process):

- Calculate daily CL VIII requirement (accounts for usage of *non-patient care* items).

  (PAR) x 0.15 lbs/man/day = Daily Class VIII requirement (lbs)

- Calculate CL VIII requirements for DNBI (Role I to IV).

  DNBI casualties x 124 lbs/patient = Total DNBI requirement (lbs)
  Total DNBI requirement x 22 percent = Role I/II requirement
  Total DNBI requirement x 69 percent = Role III requirement
  Total DNBI requirement x 09 percent = Role IV requirement

- Calculate Class VIII requirements for WIA/EPW casualties (Roles I through IV): (WIA hospital admissions + EPW hospital admissions) x (483 lbs/pt) = Total WIA/EPW requirement (lbs).

  Total WIA/EPW requirement x 12 percent = Role I/II requirement
  Total WIA/EPW requirement x 67 percent = Role III requirement
  Total WIA/EPW requirement x 21 percent = Role IV requirement

- Total Class VIII estimate (Role I through IV):

  Daily + DNBI + WIA/EPW = Total lbs/2,000 = **Total ST**
  Throughput to Role /II = Daily + Role I/II DNBI + Role I/II WIA/KIA = Total lbs/2,000 = ST
  Throughput to Role III = Role III DNBI + Role III WIA/KIA = Total lbs/2,000 = ST
  Throughput to Role IV = Role IV DNBI + Role IV WIA/KIA = Total lbs/2,000 = ST

NOTE: When estimating Class VIII requirements for combat operations at the division and below level, it is more practical to plan on using trauma medical resupply sets (MRS). The trauma MRS is a single tri-wall container that contains the expendable medical treatment items found within the medical equipment set-trauma, which is the standard trauma treatment set found in all battalion aid stations and medical treatment companies. Plan for one MRS-trauma per every 30 WIA estimated. This allows planners to preposition assets or have them pre-configured for movement in times of mass casualty operations.

Estimate HSS Workload Example

Information required to complete the estimate.

UNIT/PDY: 55th ID/15,000 present for duty
Location: IRAQ
Time Period: Day 1 of the decisive operation
Type of Operation: Division offensive operation
G-1 WIA estimate: 477
G-1 EPW estimate: 500 EPWs/day during decisive operations

Estimate Role III hospital admissions.

DNBI admissions: (Use DNBI calculator.)
10,000 x 2.09 (Cat 1)/1,000 = 20.90
5,000 x 1.48 (Cat 2)/1,000 = 07.40
Total = 28.30 or 29 patients

WIA admissions:
477 x .80 = 382 pts

EPW admissions:
500 x 0.04 = 20 pts

Total hospital admissions:
29 + 382 + 20 = 406 pts

Estimate FST surgical requirements at Role I/II.
477 x 0.10 = 47.70 = 48 urgent surgical patients
477 x 0.15 = 71.55 = 72 urgent surgical patients (pts)

Estimate Class VIII requirement in short tons.

Calculate daily nonpatient requirement.
15,000 (PAR) x 0.15 lbs/soldier = 2,250lbs (Role I/II)

Calculate DNBI requirement (by Roles of care).
29 pts x 124 lbs/pt = 3,596 lbs x 0.22 = 791 lbs (Role I/II)
x 0.69 = 2,481 lbs (Role III)
x 0.09 = 324 lbs (Role IV)

Calculate WIA/EPW requirement (by roles of care).
(382 pts + 20 pts) x 483 lbs/pt = 194,166 lbs x 0.12 = 23,300 lbs (Role I/II)
x 0.67 = 130,091 lbs (Role III)
x 0.21 = 40,775 lbs (Role IV)

Total Class VIII estimate (by Role of care).
2,250 + 3,596 +194,166 = 200,012 lbs /2,000 = 100 ST
Throughput to Role I/II = 2,250 + 791 + 23,300 1 lb = 26,341 lbs = 13.17 ST
Throughput to Role III = 2,481 +130,091 = 132,572 lbs = 66.29 ST
Throughput to Role IV = 324 + 40,775 = 41,099 lbs = 20.55 ST

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CHAPTER 5

OPERATIONAL SUSTAINMENT UNITS

This chapter summarizes the missions, capabilities, basis of allocation, assignment, and mobility for theater sustainment command TSC and personnel and finance units normally found in the communication zone and corps rear. The major items of organic equipment are included for each unit. These units are normally deployed in the communication zone under the TSC or expeditionary sustainment command (ESC) or within a corps rear area; some companies and detachments may be in the division rear area.

NOTE: Joint publication and field manual references are noted in applicable unit descriptions. The US Army source proponent for this chapter is the Force Development Directorate, Sustainment Center of Excellence, Fort Lee, VA. For more information, see FMSWeb. Some units cannot be found through an FMSWeb SRC query, primarily companies of a parent unit (i.e., BSB or GSAB). Go to the parent unit and select *Approved TOE Narrative* and the SRCs and units will be addressed.

Army Service Component Command (ASCC)
Operational Sustainment Directorate (Maintenance Collectin Point [MCP] & OCP)
SRC 51600G100/51600G200
(Numbered Army HQ)

Mission. To provide administrative control (ADCON) of Army forces, to include continous oversight and control of operations, throughout the Army HQs assigned area of responsibility (AOR). This includes the integration of Army forces into the execution of theater plans and provide support to joint, multinational, and interagency elements as required by the regional combatant commands.

Capabilities.

- Direct and manage all HR and personnel support functions and operations.
- Logistic plans, policies, and programs to support sustainment operations, contingencies of Army HQ and joint forces to include coalition, other government agencies, and non-government agencies.
- Coordinate and synchronize distribution and logistical operations across the AOR.
- Coordinate and monitor theater deployment and redeployment.
- Integrate and supervise all transportation movements.
- Establish, administer, implement and supervise resource management operations.
- Coordinate AOR civil and military operational priorities and integrate political-military support with other governmental agencies, nations, and government agencies.

Basis of allocation. One per Army, TOE 51600G000.

Assignment. Organic to the Army HQ, TOE 51600G000.

Mobility. See the section I of each subordinate TOE for its mobility requirements and capabilities.

Major pieces of equipment. None.

References. JP 3-0, *Joint Operations*, 11 August 2011*;* JP 4-0, *Joint Logistics,* 18 July 2008.

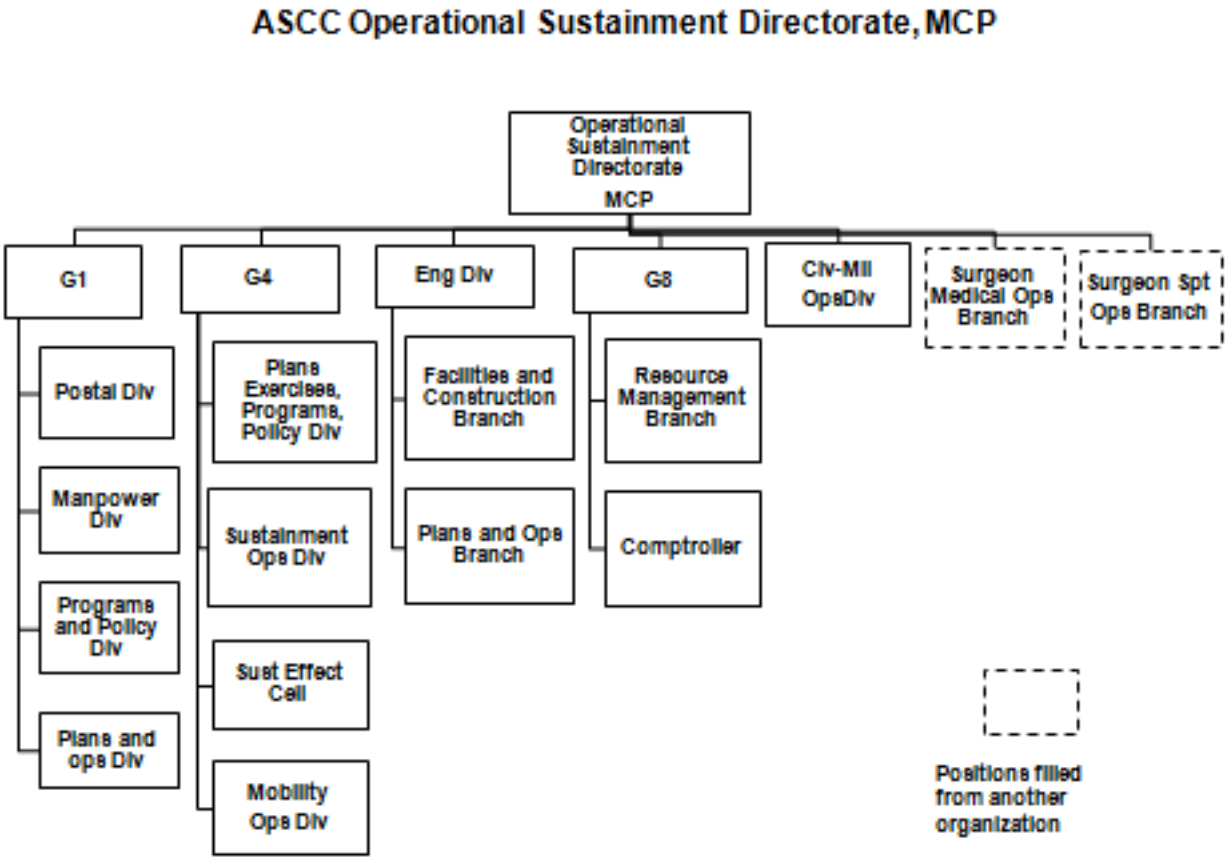

Figure 5-1. ASCC Operational Sustainment Directorate, MCP.

ASCC Operational Sustainment Directorate OCP

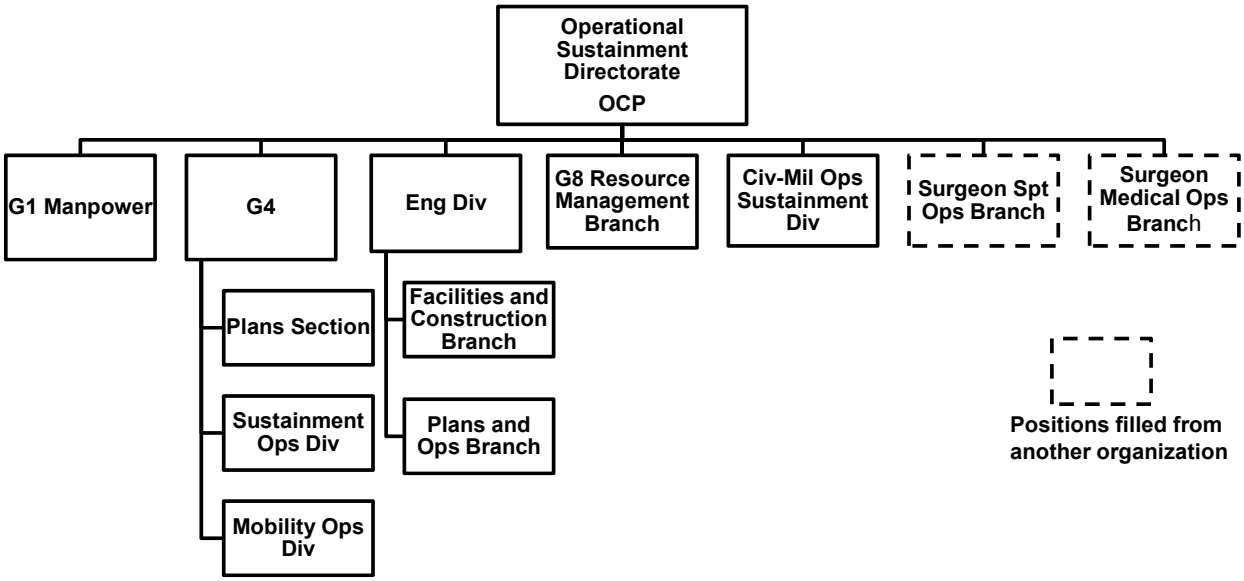

Figure 5-2. ASCC Operational Sustainment Directorate, OCP.

Headquarters, Theater Sustainment Command (TSC)
SRC 63702G000

Mission. Provides operational logistics support to an Army service component command (ASCC), corps or joint task force or joint forces.

Capabilities.

- Serves as the senior Army logistics headquarters in a theater of operations and is the single Army logistics headquarters for a theater-level numbered army (e.g. Third Army), joint force command (JFC), or regional component command (RCC).
- Plans, controls, and synchronizes all operational-level logistics in support of a theater-level numbered army or joint force commander including theater opening and distribution.
- Provides single logistic mission command in theater, simultaneously providing full- spectrum support operations during deployment, employment, sustainment, and redeployment.
- Is regionally focused and globally employable and is capable of operating as part of a joint or combined force.
- Deploys multiple expeditionary sustainment command (ESC) headquarters into separate AO/joint operations areas (JOA) and provide support to Army, joint, interagency, and multinational forces.
- Deploys or employs multifunctional sustainment brigades in an operational-level role to execute theater opening and distribution operations synchronized with the campaign plan supporting one or more corps/divisions.

Basis of allocation. One per designated regional command.

Assignment. RCC or Army forces (ARFOR).

Mobility. 50 percent.

Major pieces of equipment. N/A

References. JP 3-0, *Joint Operations*, 11 August 2011*;* JP 4-0, *Joint Logistics,* 18 July 2008.

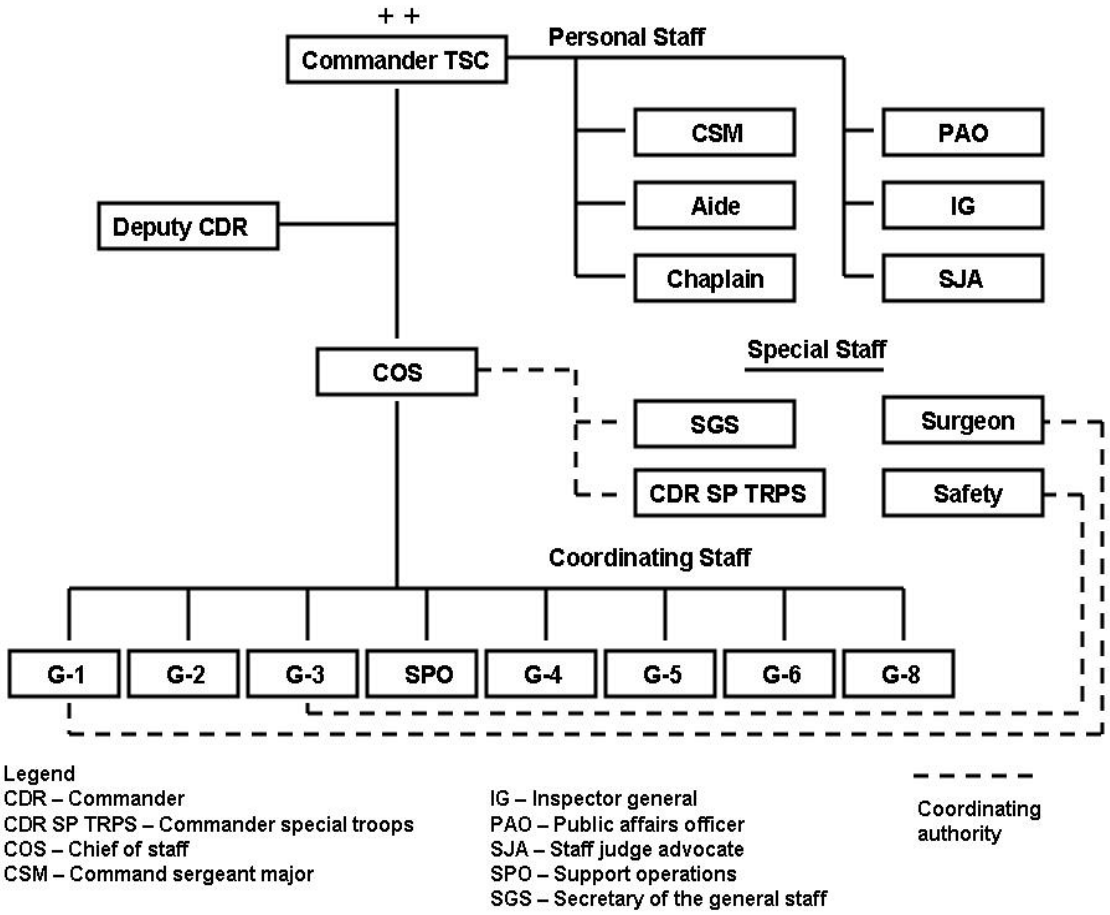

Figure 5-3. Theater Sustainment Command (TSC).

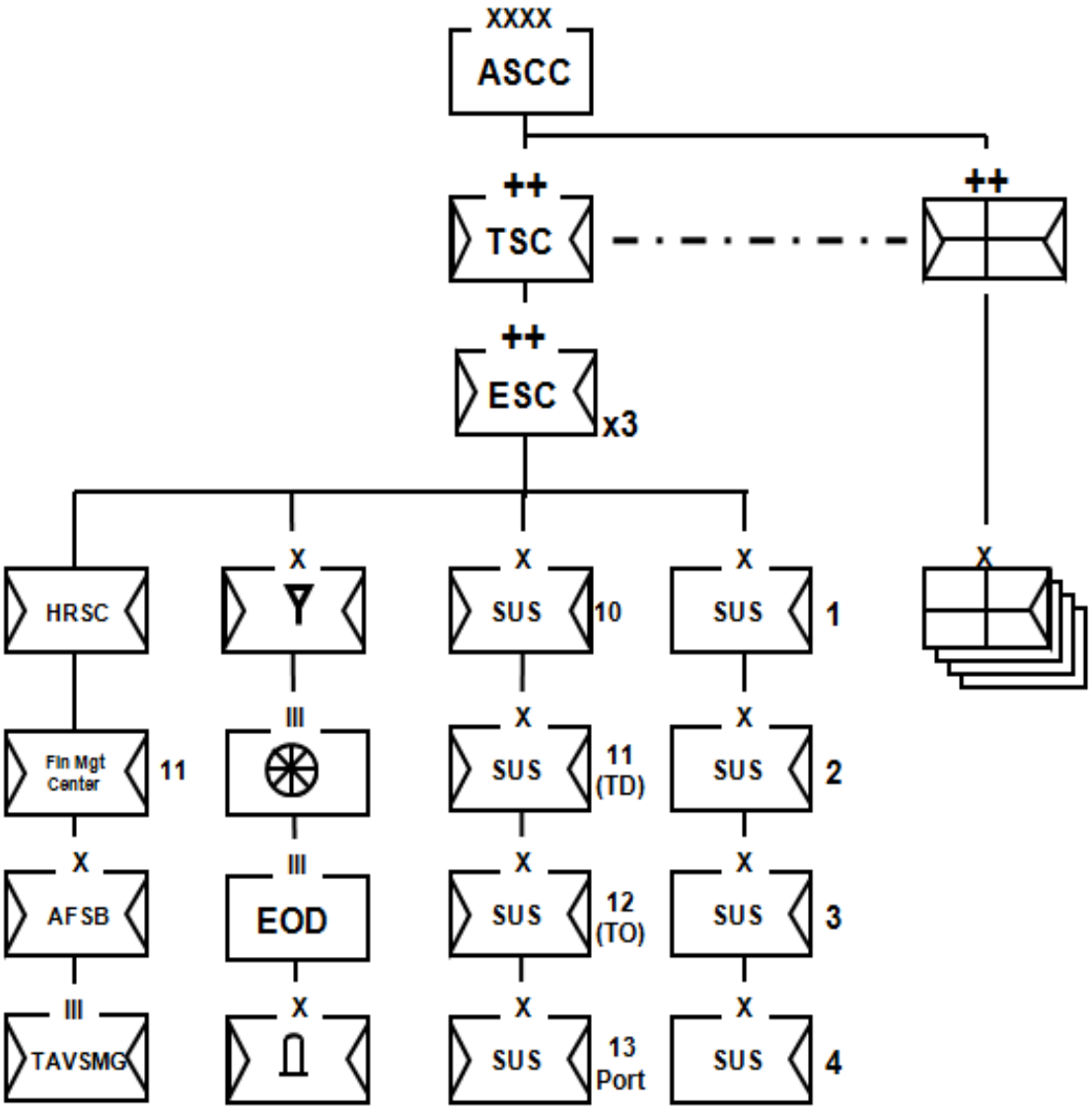

Figure 5-4. Notional Theater Sustainment Command (TSC).

Headquarters, Expeditionary Support Command (ESC)
SRC 63702R100

Mission. Serves as a forward-based mission command element of a TSC. Plans, prepares, deploys, and executes operational logistics within an assigned area of operations (AO) with logistical forces OPCON to the TSC.

Capability.

- Executes logistical operations limited in scope and scale employing reach capabilities if deploying the TSC is deemed unnecessary.
- Plans, controls, and synchronizes all operational levels of logistics in support a theater-level numbered army or joint force commander including theater opening and distribution.
- Provides a single logistic mission command in theater simultaneously providing full- spectrum support operations during deployment, employment, sustainment, and redeployment.
- Is regionally focused and globally employable; capable of operating within a joint or combined force.
- Deploys or employs multiple sustainment brigades in an operational-level role to execute theater opening, distribution, and sustainment operations synchronized with the campaign plan for one or more corps/divisions.

Basis of allocation. One per AO/JOA in support of the senior Army tactical HQ (division or corps as the ARFOR).

Assignment. To an ASCC.

Mobility. 20 percent.

Major pieces of equipment. N/A

References. JP 3-0, *Joint Operations*, 11 August 2011*;* JP 4-0, *Joint Logistics,* 18 July 2008.

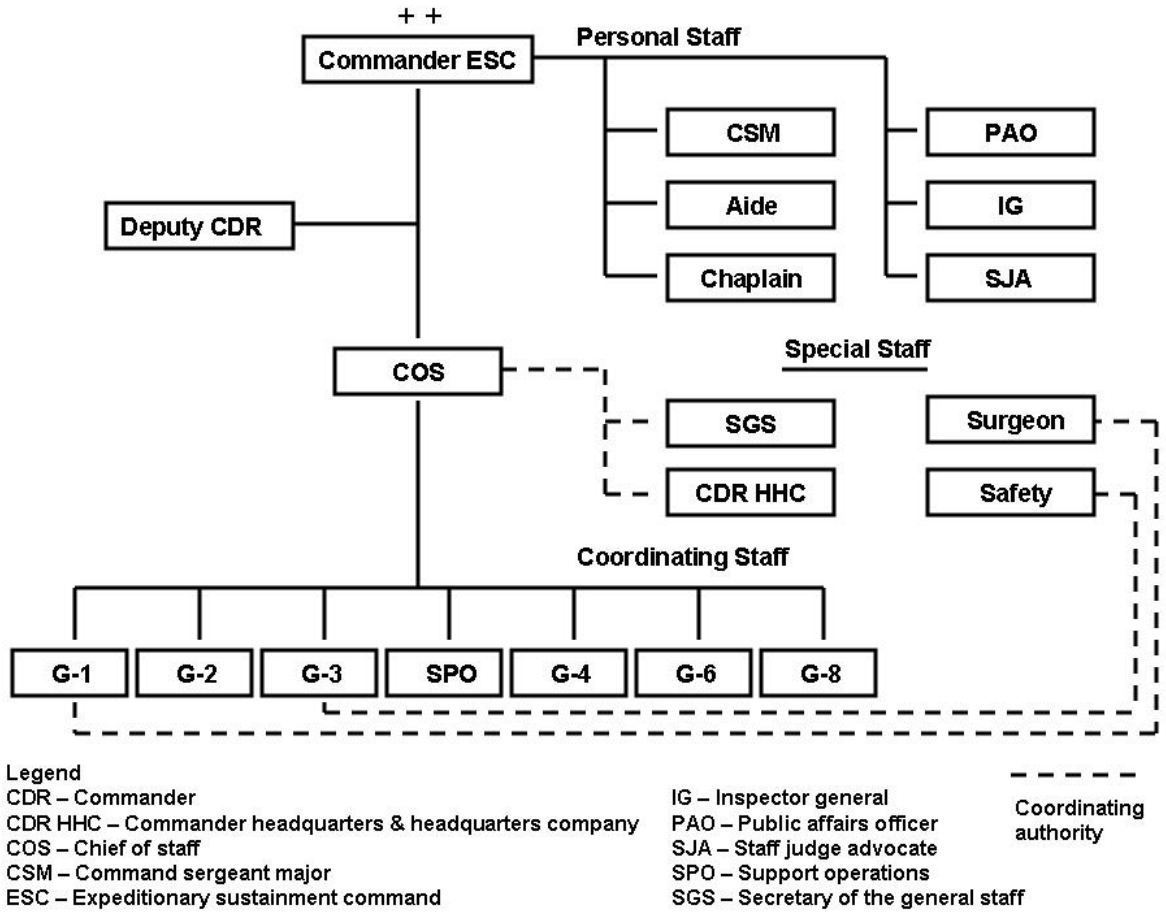

Figure 5-5. Expeditionary Sustainment Command (ESC).

Sustainment Brigade (SUST BDE)
SRC 63302R000

Mission. To provide mission command for all subordinate units of the sustainment brigade, synchronize current and future sustainment operations for the expeditionary sustainment command (ESC) and theater sustainment command (TSC).

Capability.

- Performs tactical or operational-level sustainment missions dependent on task organization.
- Provides mission command and technical supervision in all logistical functional areas.
- Performs logistical mission analysis to develop advice and input to logistical plans, concepts of support, and service support annexes.
- Plans and conducts sustainment operations.
- Provides supply and materiel management for all classes of supply (plus water).

Basis of allocation. One per 3-7 subordinate sustainment battalions.

Mobility. 82 percent.

Assignment. Assigned to the TSC or the ESC.

Reference. JP 3-0, *Joint Operations*, 11 August 2011*;* JP 4-0, *Joint Logistics,* 18 July 2008.

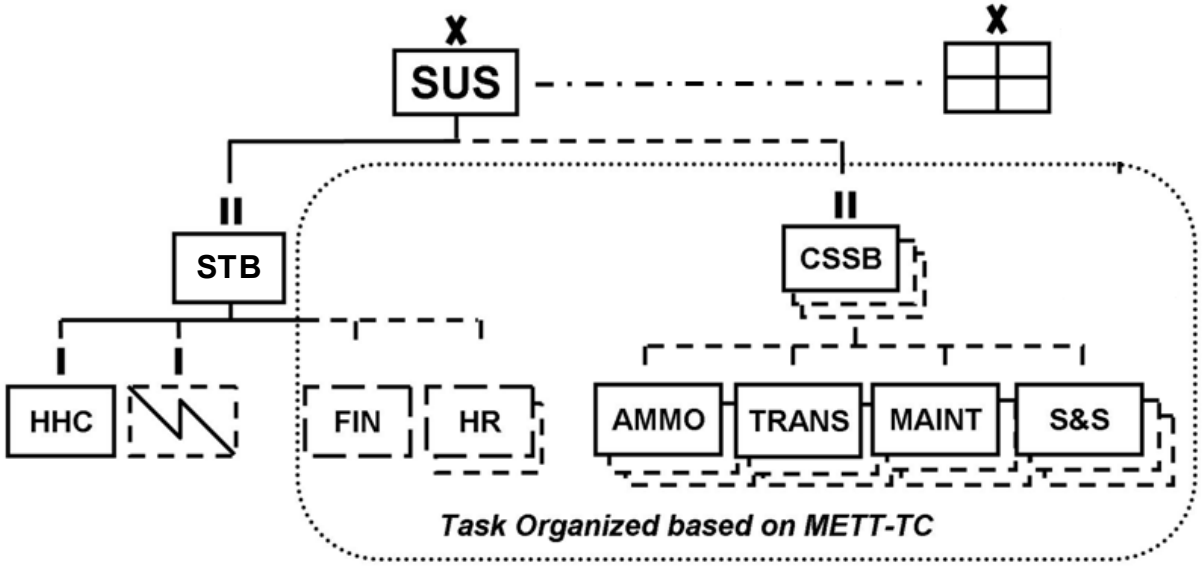

Figure 5-6. Sustainment Brigade (Notional).

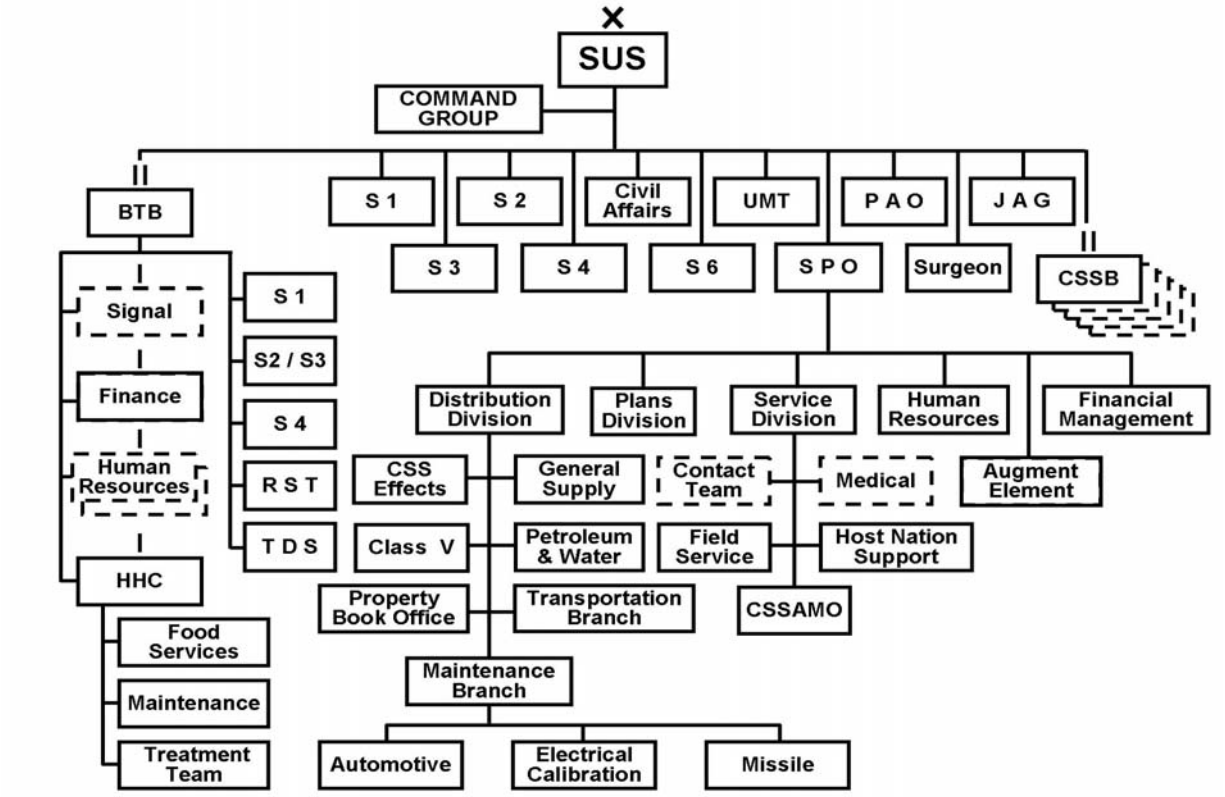

Figure 5-7. Headquarters Notional Sustainment Brigade.

Theater Opening (TO) Element
SRC 55542RA00

Mission. Provides staff integration to the sustainment brigade headquarters of deployable command post or sustainment command (expeditionary) engaged in theater opening operations.

Capability.

- Augments a sustainment brigade providing capabilities required to open a theater of operations.
- Establishes initial distribution network and provides support for one to three BCTs.
- Conducts essential early-entry operations prior to employment of full-theater opening forces.
- Conducts force reception, staging, onward movement (RSO), and initial distribution operations.
- Establishes necessary infrastructure to fully developed theater distribution/sustainment operations.
- Performs operations, to include communications, force protection, intelligence, and civil-military operations required to support theater opening operations.
- Performs direct operational sustainment, to include the engineer, maintenance, and medical support necessary to sustain theater-opening operations.
- Performs direct life support and human resource operations to support theater-opening operations.
- Provides financial management necessary to support theater-opening operations.

Basis of allocation. As required, based on stated capabilities.

Assignment. To the TSC or the ESC as required; assigned or attached to initial entry sustainment brigade executing theater opening operations.

Mobility. 33 percent.

Major pieces of equipment. N/A

Reference. JP 3-0, *Joint Operations*, 11 August 2011*;* JP 4-0, *Joint Logistics,* 18 July 2008.

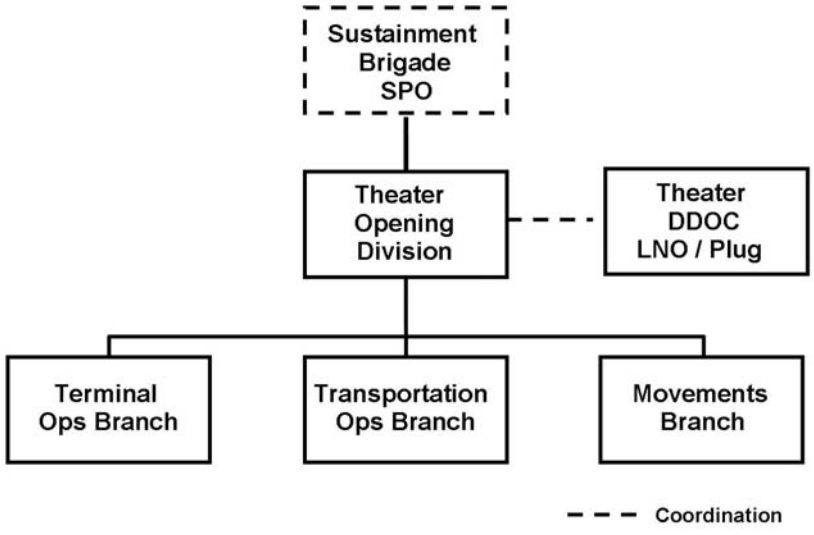

Figure 5-8. (Support Operations) SPO Section, Headquarters, Sustainment Brigade.

Theater Distribution (TD) Element
SRC 63542RA00

Mission. Provides augmentation to HHC STB sustainment brigade when operating as a theater distribution hub.

Capability.

- Augments a sustainment brigade operating a distribution hub to coordinate force protection issues in distribution operations.
- Provide 24-hour distribution management for a theater distribution hub.
- Coordinates force protection requirements at the regional distribution hubs, CSCs, and on the MSRs with the distribution division and plans division.
- Monitors force protection action effectiveness in support of theater distribution operations.
- Provides munitions materiel management, manage munitions flow, and maintain munitions asset visibility across assigned AOR.
- Maintains in-transit visibility of all personnel, equipment, and supplies moving by motor, air, or rail.
- Maintains location status of motor, air, and rail assets.

Basis of allocation. As required for the theater distribution mission.

Assignment. One per TSC or ESC, as required. Attached/OPCON to sustainment brigade responsible for theater distribution operations.

Major pieces of equipment. N/A

Mobility. 75 percent.

Reference. JP 3-0, *Joint Operations*, 11 August 2011*;* JP 4-0, *Joint Logistics,* 18 July 2008.

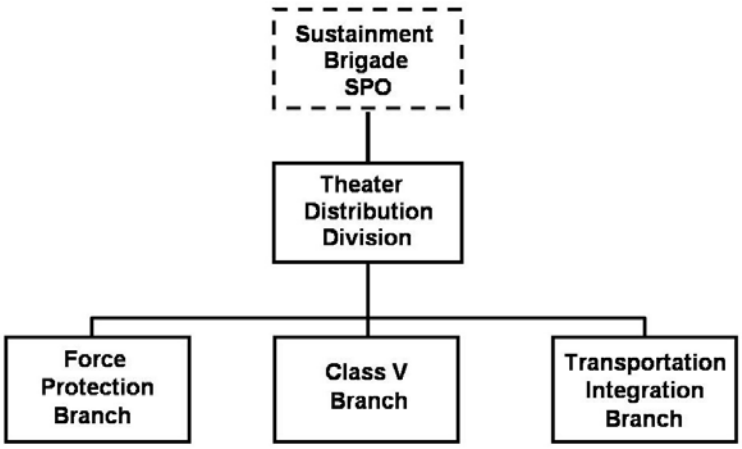

Figure 5-9. Theater Distribution Element.

Army Field Support Brigade (AFSB)
SRC 90872R000

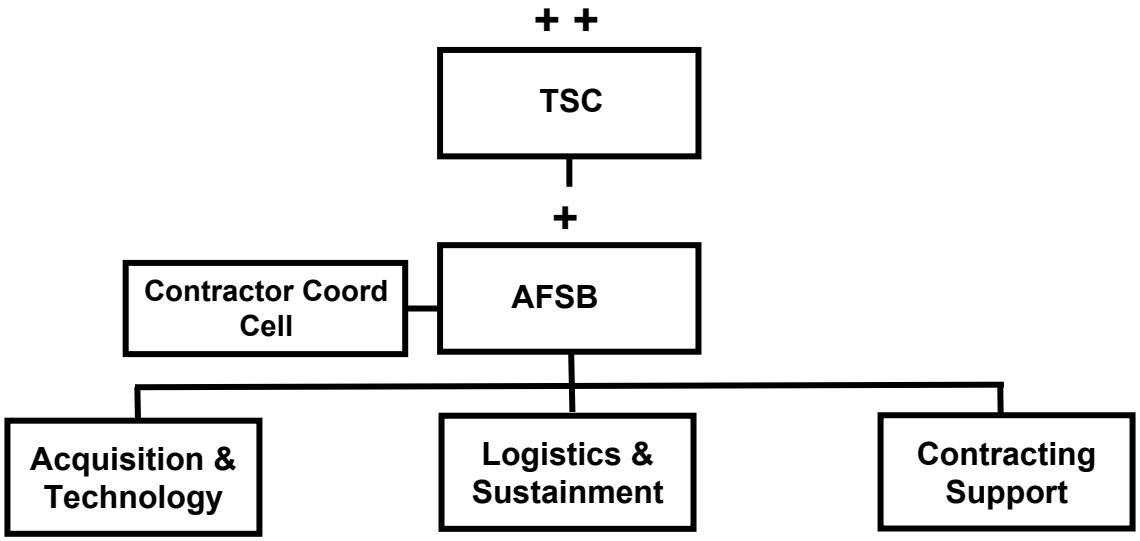

Figure 5-10. Army Field Support Brigade.

Mission. Integrate USAMC acquisition, logistics and technology (ALT) capabilities (less theater support contracting and LOGCAP) in support of the operational and tactical level commanders across the full spectrum of military operations.

Capability.

- Serves as single POC for and integrate and synchronize theater ALT support.
- Integrates Army Sustainment Command (ASC) theater support, bridging strategic-operational logistic bridge.
- Provides regional alignment logistic expertise to the theater.
- Administers the theater LOGCAP Program.
- Administers Logistics Assistance Program in theater.
- Integrates contingency contracting.
- Accounts for contractors on the battlefield and arranges deployment support.
- Maintains in-transit visibility of all personnel, equipment, and supplies moving by motor, air, or rail.
- Maintains the location status of motor, air, and rail assets.

Basis of allocation. One per TSC.

Assignment. To the ASC in direct support of the TSC; AFSBs are theater aligned. Each theater army will have an AFSB.

Major pieces of equipment. N/A

Mobility. 100 percent.

Reference. JP 3-0, *Joint Operations*, 11 August 2011*;* JP 4-0, *Joint Logistics,* 18 July 2008.

Human Resource Units

Human Resources Sustainment Center (HRSC)
SRC 12682R000

Mission. Integrates human resource support for the theater, ASCC headquarters, and other echelons, as directed by the theater or ASCC G-1. Provides technical guidance to HR companies.

Capabilities.

- Deploys in total or as separate elements based on METT-TC and ASCC G-1 guidance. Can provide support to deployed command posts of various theater-level mission command nodes.
- Supports but does not execute postal, R5, and personnel information flow.
- Performs oversight of all casualty reporting within the theater of operations.

Basis of allocation. One per theater.

Assignment. Theater sustainment command.

Mobility. 50 percent.

Major pieces of equipment. N/A

References: FM 1-0, *Human Resources Support,* 6 April 2010.

Personnel Company (Human Resources)
SRC 12410R100

Mission. Provides mission command and technical support to HR, postal, R5, and casualty units.

Capabilities. The company is a workload mission command based organization employed with any combination of two to six human resources (multi-functional) or postal platoons. It operates in the aerial port of debarkation (APOD), when augmenting a military mail terminal, or a theater gateway personnel accountability team, and on an area support basis to the division, corps, or theater, as directed by their respective G-1s.

Basis of allocation. One per 2-6 platoons (HR and/or postal; 1 per military mail terminal; 1 per theater gateway center (personnel accountability).

*Assignmen*t. To a combat sustainment support battalion (CSSB).

Mobility. 50 percent.

Major pieces of equipment. N/A

References: FM 1-0, *Human Resources Support,* 6 April 2010.

Military Mail Terminal Team (MMTT)
SRC 12567GA00

Mission. Provide postal support to a theater of operations by coordinating, receiving and processing incoming mail as well as dispatching mail to CONUS.

Capabilities.

- Establishes and runs the Army component of a joint military mail terminal with the manpower support of an HR company at the aerial port of debarkation (APOD).
- Provides specialized postal expertise and experience to process incoming mail and dispatch mail to CONUS at the APOD.

Basis of allocation. One per inter-theater APOD.

Assignment. Sustainment brigade.

Mobility. 50 percent.

Major pieces of equipment. N/A

References. FM 1-0, *Human Resources Support,* 6 April 2010.

Theater Gateway Personnel Accountability Team
SRC 12567RB00

Mission. Provides support to the theater of operations by providing personnel accountability of transient personnel entering, departing, or transiting the theater.

Capabilities.

- Coordination with other services and other supporting units for operating space at the terminal, flight schedules, follow-on transportation and all logistical support.
- Logistical planning, movement control and transportation planning, operating guidance, and all other necessary coordination.
- Vital link with sustainment support units, forward S-1 and G-1 sections, and CONUS-based staging areas.

Basis of allocation. To a sustainment brigade, with a theater opening mission.

Assignment. To a sustainment brigade, with a theater opening mission.

Mobility. 100 percent.

Major pieces of equipment. N/A

References: FM 1-0, *Human Resources Support,* 6 April 2010.

Postal Platoon
SRC 12410R100 (See approved TOE narrative.)

Mission. Provides theater postal support on an area basis.

Capabilities.

- Handles operational and service missions at any theater echelon.
- Communicates digitally via VSAT, the Web, and voice.

Basis of allocation. One per 6,000 personnel.

Assignment. Human resource company headquarters or postal company headquarters.

Mobility. 100 percent.

Major pieces of equipment. N/A

References: FM 1-0, *Human Resources Support,* 6 April 2010.

Human Resources Platoon
SRC 12410R100 (See approved TOE narrative.)

Mission. Provides personnel accountability and casualty liason function as METT-TC dictates.

Capabilities.

- Primarily employed at the theater level aerial port of debarkation (APOD), sea port of debarkaton (SPOD), sea port of embarkation (SPOE), or division/corps intra-theater APOD.

- Communicate digitally via VSAT, the Web, and voice.

Basis of allocation. The HR platoon is a workload-based organization.

Assignment. HR company headquarters, personnel company headquarters, or HRSC.

Mobility. 100 percent.

Major pieces of equipment. N/A

References: FM 1-0, *Human Resources Support,* 6 April 2010.

Financial Management Units

Financial Management Support Center
SRC 14537R000

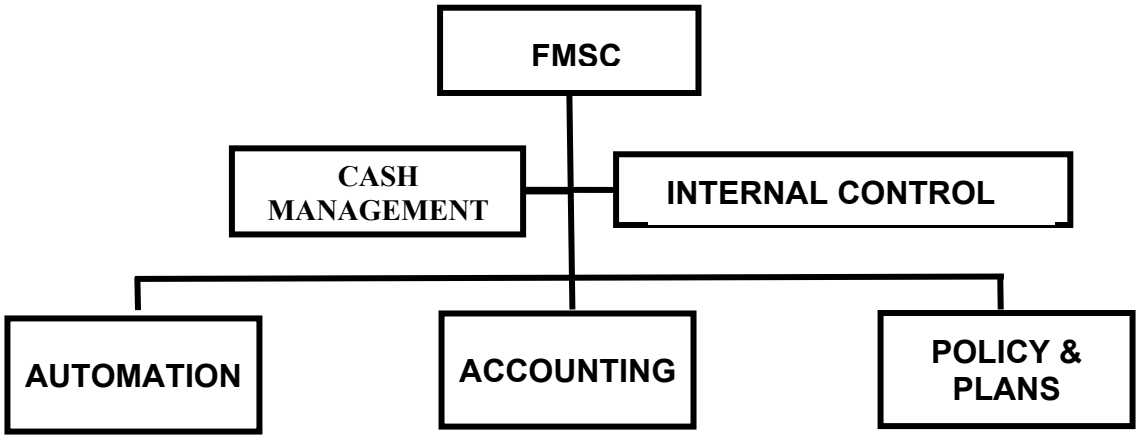

Figure 5-11. Financial Management Support Center.

Mission. To assert technical coordination over all financial management support units (FMSUs) and financial management support detachments (FMSDs) in theater; provides technical oversight for all theater finance operations including: negotiations with host nation banking facilities, advising unit commanders on the use of local currency, and coordination with national providers (U.S. Treasury, Defense Finance and Accounting Services (DFAS), Assistant Secretary of the Army for Financial Management and Comptroller (ASA(FM&C)) and United States Army Finance Command (USAFINCOM) to establish financial management (FM) support requirements; sustain Army, joint and combined operations by providing timely contractual and procurement payments and theater disbursing capability.

Capability.

- Financial management executive agency responsibilities.
- Financial management policy and procedures for theater implementation.
- Currency requirements (U.S. and foreign currency) and provides central funding support for all FM units in the theater area of responsibility.
- Unit commanders advice on the use of local currency for personal affairs.
- Advice regarding the interpretation and dissemination of FM directives, policy, and guidance developed by the national providers.
- Implementation and enforcement of internal control measures.
- Appropriated and non-appropriated fund (NAF) accounting for the theater.
- Negotiations with host nation banking facilities.

Basis of allocation. One per theater sustainment command.

Assignment. The financial management support center (FMC) is a theater-level asset responsible for all financial management operations within the theater area of responsibility (AOR).

Major pieces of equipment. N/A

Mobility. 50 percent.

References: FM 1-06, *Financial Management Operations,* 4 April 2011.

Financial Management Support Unit
SRC 14420R000

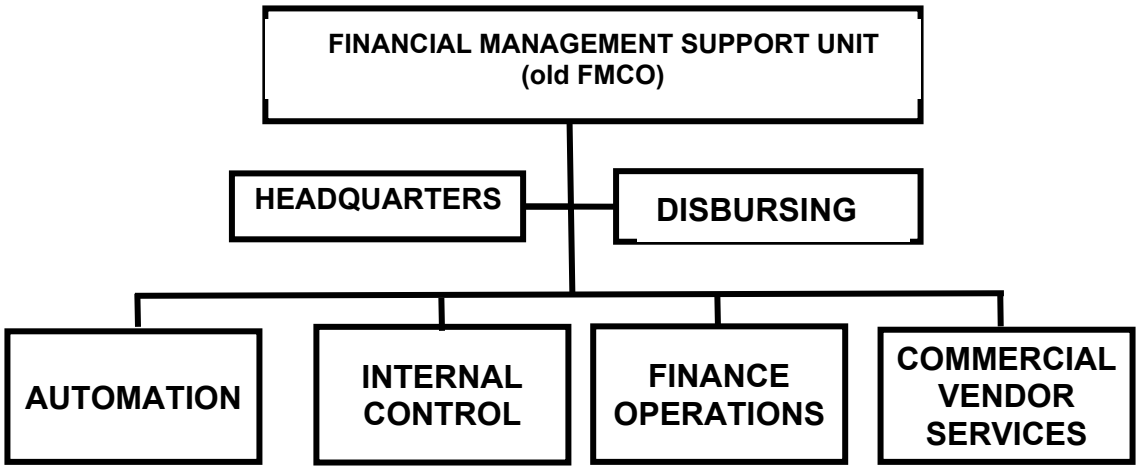

Figure 5-12. Financial Management Support Unit.

Mission. Exercises mission command of the unit headquarters section and three to seven financial management support detachments (FMSD). The financial management support unit (FMSU) coordinates and executes financial management support on an area basis while providing critical information to the commander. The FMSU analyzes the supported commander's tasks and priorities to identify the financial resource requirements enabling mission accomplishment.

Capability.

- Provides battle command of widely dispersed, assigned or attached financial management support detachments (FMSD).
- Responsible for all FM operations on an area support basis.

Limitations.

This unit is dependent upon appropriate elements of the brigade, division, corps, or theater for religious, legal, force health protection, personnel and administrative, and logistical services. Appropriate elements of the supported unit for field maintenance and field feeding. Appropriate elements of the supported unit for security of convoys moving currency.

Basis of allocation. One per sustainment brigade SRC 63302R000, and 1 per 3-7 FMSDs (average of 5 detachments). Phase I -III, and 1 per 3-5 FMSDs during Phase IV and V operations.

Assignment. The HQs, FMSU is co-located with a brigade- or equivalent-sized unit and is positioned throughout the theater. The unit is responsible for all financial management (FM) operations on an area support basis.

Major pieces of equipment. N/A

Mobility. 100 percent.

References: FM 1-06, *Financial Management Operations,* 4 April 2011.

Financial Management Support Detachment
SRC 14527RB00

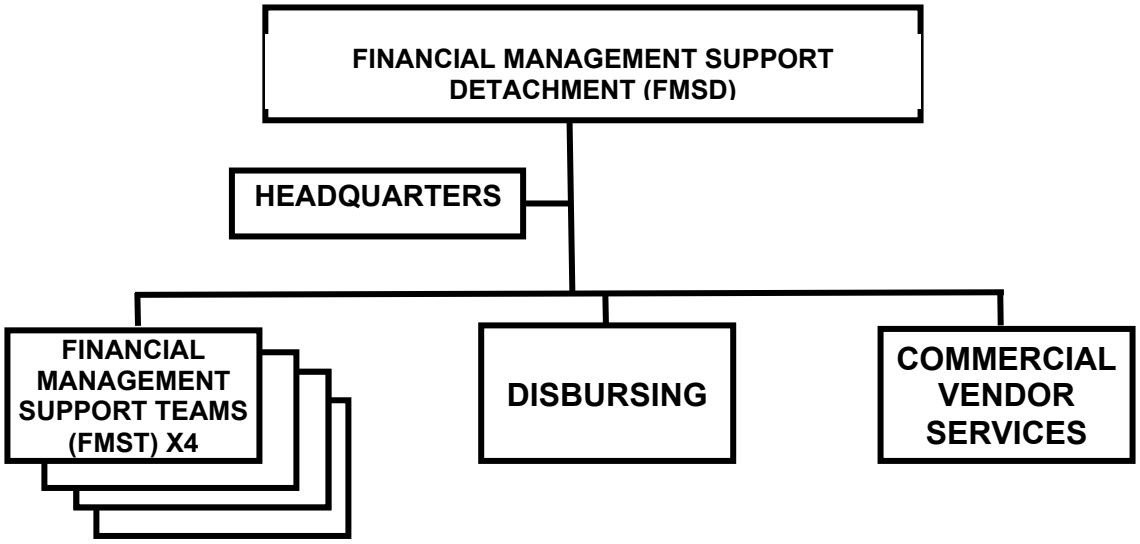

Figure 5-13. Financial Management Support Detachment.

Mission. The financial management support detachment (FMSD) provides contracting and commercial vendor services support, disbursing and funding support, detainee/internment/resettlement (I/R) pay support, non-U.S. pay support and U.S. pay support to brigade, division, corps, or theater/Army service component command (ASCC) units.

Capability.

- Command, control, and supervision of widely dispersed, assigned, or attached FMSTs.
- Procurement support operations: Contracting and commercial vendor services support.
- Disbursing operations: Accountability for public funds, stored value card (Eagle Cash Card) support, and paper check conversion.
- Funding and processing of paying agents: Agent advances/clearing, SF44 reconciliation, limited local national payrolls, limited military payrolls, change funds, and non-integrated accounting support.
- Currency exchange: U.S. currency, foreign currency, and military payment certificate (MPC).
- Treasury check operations: Voucher payments, exchanges for cash, cash collections, and cash disbursements.
- Pay support: Limited U.S. pay support, foreign national pay support, detainee/I/R pay support mandated by the Geneva Convention, and limited travel pay support.
- Support to forward deployed soldiers using FMSTs that provide procurement, military pay, and disbursing support.

Limitations. Appropriate elements of the brigade, division, corps or ASCC for religious, legal, force health protection, personnel and administrative, field maintenance, vehicle recovery, field feeding support, and logistical services. The appropriate elements of the supported unit for security of convoys moving currency.

Basis of allocation. Assigned to a financial management support unit (FMSU) HQ, TOE 14423R000. One per 6,000 supported soldiers.

Assignment. The FMSD is located throughout the battlefield, and is responsible for all financial management (FM) operations on an area basis. Financial management support teams (FMST) may deploy away from the detachment headquarters and operate independently when METT-TC dictates.

Major pieces of equipment. N/A

Mobility. 100 percent.

References: FM 1-06, *Financial Management Operations,* 4 April 2011.

Contract Support Brigade

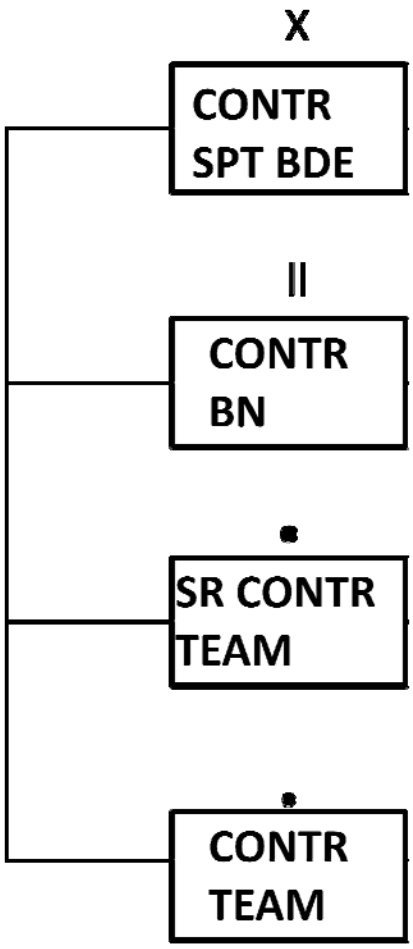

Figure 5-14. Contract Support Brigade, 90873R000.

Mission. Provide theater contracting oversight, support, planning, and legal advice to the theater.

Capabilities. This unit provides mission command, planning, and coordination for contracting functions.

Employment. This unit is employed in a sustainment brigade area of operation to support a theater sustainment command (TSC).

Basis of Allocation. One PER Army service component command (ASCC).

Dependencies.

- Sustainment brigade STB, TOE 63302R000, or brigade combat team STB for legal, administration, personnel, supply, religious, field feeding, transportation, and field maintenance support.
- Support maintenance company SMC, TOE 43470R000, for field maintenance on unit equipment.
- Area medical company, TOE 08457R000, for force health protection and Class VIII support.

Headquarters Contingency Contracting Battalion, 90876R000

Mission. Provide contracting support.

Capabilities. This unit provides mission command, planning, and coordination for contracting functions.

Employment. This unit is employed in a Sustainment Brigade area of operation with assignment to a Contingency Contracting Brigade, TOE 90873R000.

Basis of Allocation. One battalion HQ per 1 to 11 Contingency/Senior Contracting Teams.

Dependencies.

- Sustainment brigade STB, TOE 63302R000, or brigade combat team STB for legal, administration, personnel, supply, religious, field feeding, and field maintenance support.
- Support maintenance company SMC, TOE 43470R000, for field maintenance on unit equipment.
- Area medical company, TOE 08457R000, for force health protection and Class VIII support.

Senior Contingency Contracting Team, 90587GA00

Mission. Provide contracting support.

Capabilities. This unit provides planning and coordination for contracting functions.

Employment. This unit is employed in a sustainment brigade area of operation, assigned to a contingency contracting battalion, TOE, 90876R000, and attached to a Army field support brigade, TOE 90872R000.

Basis of Allocation. One per corps or division.

Dependencies.

- Sustainment brigade STB, TOE 63302R000, for legal, administration, personnel, supply, religious, field feeding, and field maintenance support.
- Support maintenance company SMC, TOE 43470R000, for field maintenance on unit equipment.
- Area medical company, TOE 08457R000, for force health protection and Class VIII support.

Contingency Contracting Team, 90588GA00

Mission. Provide contracting support.

Capabilities. This unit provides planning and coordination for contracting functions.

Employment. This unit is employed in a sustainment brigade area of operation with assignment to a contingency contracting battalion, TOE, 90876R000.

Basis of Allocation. One per brigade combat team (BCT) and (or) two per sustainment brigade.

Dependencies.

- Sustainment brigade STB, TOE 63302R000, or brigade combat team STB for legal, administration, personnel, supply, religious, field feeding, and field maintenance support.
- Support maintenance company SMC, TOE 43470R000, for field maintenance on unit equipment.
- Area medical company, TOE 08457R000, for force health protection and Class VIII support.

CHAPTER 6

TACTICAL SUSTAINMENT UNITS

This chapter summarizes the missions, capabilities, basis of assignment, and mobility for selected sustainment units normally found assigned at the tactical level. This includes those units assigned within sustainment brigades in the corps area as well as those organic to assigned BCTs. The major items of organic equipment are listed for each unit. Many headquarters units (brigades, groups, battalions, etc.) are not listed since they perform only a mission command function and have neither a physical logistics capability nor major equipment. TOE changes and updates are incorporated when they are known at the time of publication.

PART I: US ARMY

***NOTE:** The source proponent for this chapter is Force Development Directorate, Sustainment Center of Excellence, Fort Lee, VA. For more information, see FMSWeb. Some units cannot be found through an FMSWeb SRC query, primarily companies of a parent unit (i.e., BSB or GSAB). Go to the parent unit and select *Approved TOE Narrative* and the SRCs and units will be addressed.

Tactical Headquarters Sustainment Staffs

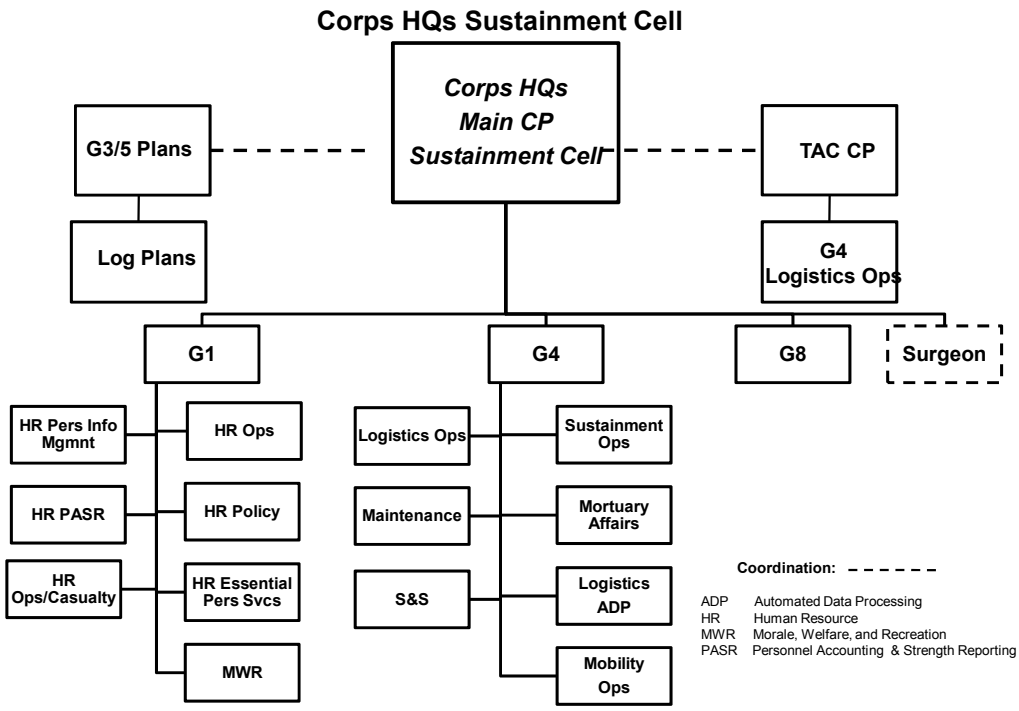

Figure 6-1. Corps HQ Sustainment Cell.

Mission. Establishes logistical policies and procedures for the corps. Conducts logistical staff analysis; performs operational planning; and prepares the concept of sustainment. Monitors, manages, and synchronizes current sustainment operations. Coordinates with supporting sustainment brigade(s). Integrates sustainment operations over the next 48 to 72 hours with commander's operational plans and guidance.

Capabilities.

- Operates 24-hour staffing; overseeing plans, policies, and procedures for sustainment functions.
- Coordinates sustainment operational planning with supporting sustainment brigade(s).
- Manages contracting and LOGCAP operations.
- Develops movement and movement control plans for the transportation units.
- Develops maintenance timelines.
- Maintains and monitors the LCOP and coordinates and develops concept of sustainment plans.
- Monitors and analyzes the performance of the supply system.
- It conducts operational and tactical planning to support movement control and mode and terminal operations.

Assignment. Corps headquarters assigned in theater.

Mobility. 100 percent.

Major pieces of equipment. N/A

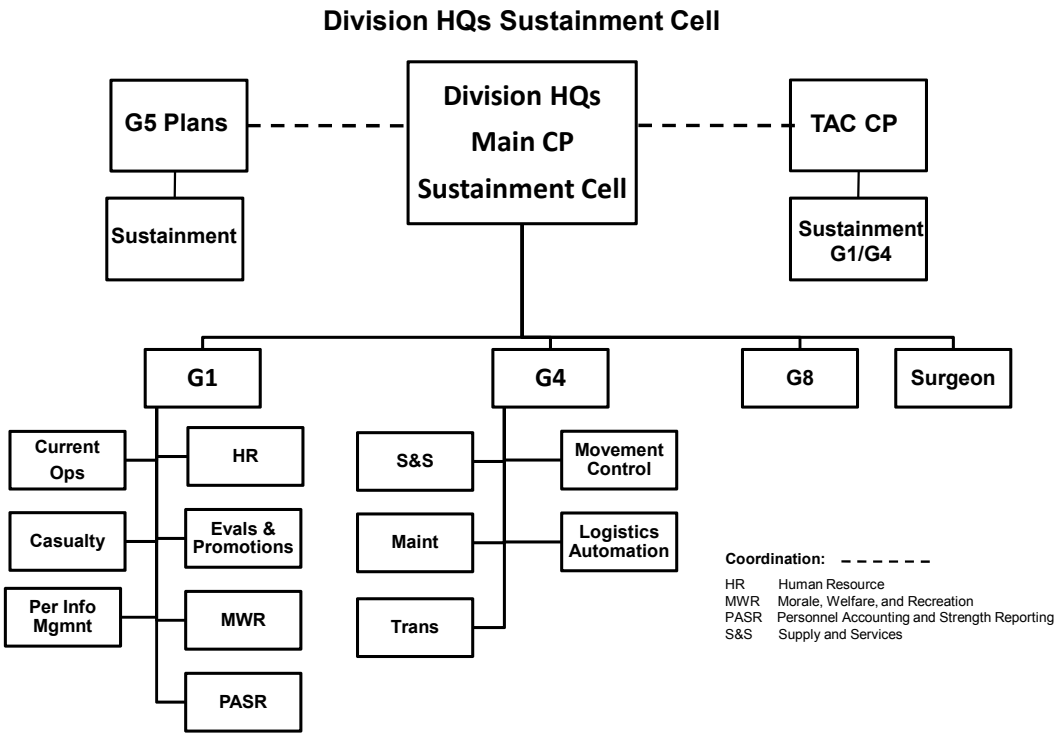

Figure 6-2. Division HQ Sustainment Cell.

Mission. Coordinates integrating logistic functions for the division. Establishes logistical policies and procedures for the division. Conducts logistical staff analysis and operational planning; prepares the concept of sustainment. Monitors, manages, and synchronizes current sustainment operations. Coordinates with supporting sustainment brigade(s). Integrates sustainment operations over the next 48 hours with the commander's operational plans and guidance.

Capabilities.

- Operate 24-hour staffing; overseeing plans, policies, and procedures for sustainment functions.
- Coordinates sustainment operational planning with supporting sustainment brigade(s).
- Develops maintenance timelines.
- Maintains and monitors the LCOP and coordinates and develops concept of sustainment plans.
- Monitors and analyzes the performance of the supply system.

Assignment. Organic, one per assigned division headquarters in theater.

Mobility. 100 percent.

Major pieces of equipment. N/A

Combat Service Support Battalion (CSSB)

Headquarters Combat Sustainment Support Battalion (CSSB)
SRC 63426R000

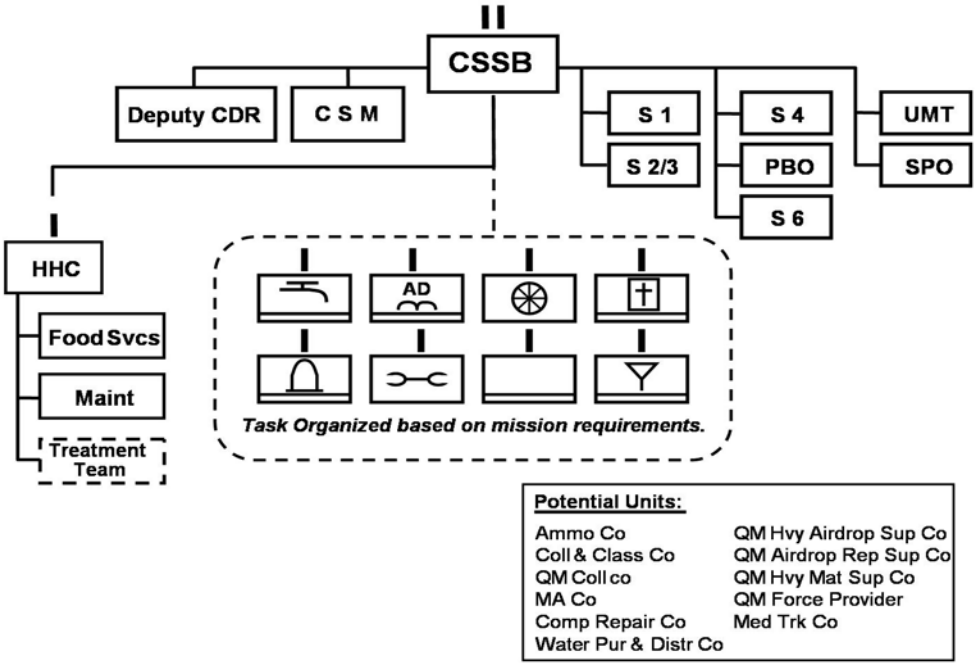

Figure 6-3. Headquarters Combat Sustainment Support Battalion (CSSB).

Mission. Mission command for a tailored logistic unit which executes logistic support throughout the depth of an assigned AO.

Capability.

- Mission command, a flexible, tailored combination of functional sustainment companies, platoons, detachments, and teams dependent on METT-TC.
- Dependent on assigned companies and can provide all classes of supply (less CL VIII) as well as field services across all operational phases.
- Adapts quickly to changing tactical situations through its organizational flexibility.
- Executes the logistical mission on an area- or unit-support basis.
- Provides distribution links between the theater base and the supported units.

Basis of allocation. One per three to seven sustainment companies.

Assignment. To the HHC and special troops battalion sustainment brigade, and can be assigned to a joint task force (JTF).

Mobility. 100 percent.

Major pieces of equipment. N/A

Brigade Support Battalion (BSB) (ABCT)
SRC 63325R000

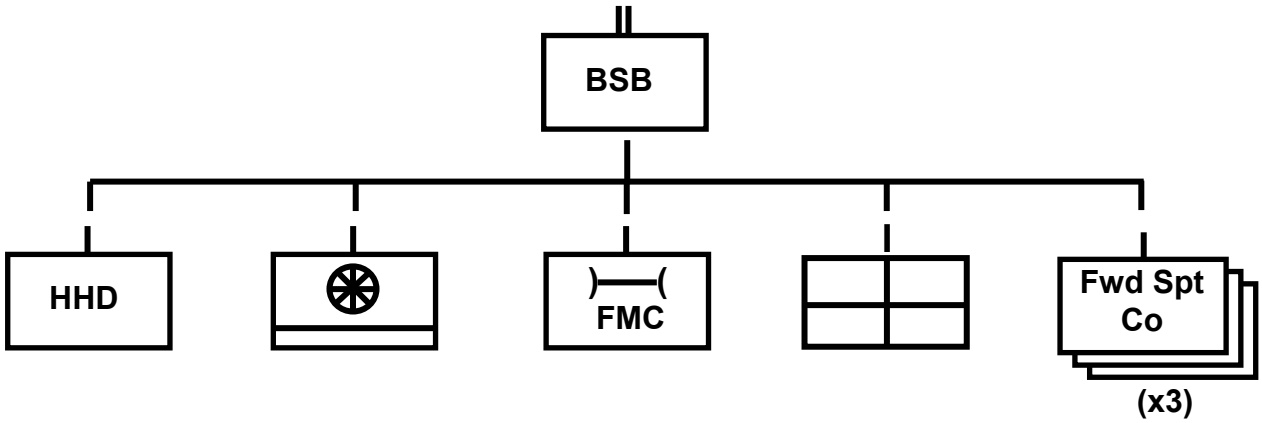

Figure 6-4. Brigade Support Battalion (BSB).

Mission. Plans, coordinates, synchronizes, and executes all logistic operations in support of ABCT operations.

Capability.

- Consolidates selected sustainment functions previously performed by division support commands, area support groups, corps support groups, and forward support battalions.
- Provides BCT capability to upload three basic/combat loads sufficient for 72 hours of operation.
- Serves as organic forward support companies (FSC) for each BCT battalion; serves as logistic providers.
- The BSB commander serves as the BCT commander's senior logistician.
- Units are organized, equipped, staffed, and trained to perform distribution-based sustainment operations.
- The unit plans and directs BCT rear operations.

Assignment. Organic to all BCTs. BSBs are essentially organized alike with minor variations in technical capabilities and personnel are dependent on BCT assignment.

Mobility. 100 percent.

Major pieces of equipment. None.

NOTE: Each type of BCT (ABCT, IBCT and SBCT) has an organic BSB with a varied organization or equipage peculiar to that type of BCT. However, the basic three-company (plus FSCs) organization is common to all BSBs (minus SBCTs). For this reason, only the ABCT BSB is included in this ST. Specifics of the others can be found at FMSWeb.

Distribution Company (BSB) (ABCT)*
SRC 63328R100

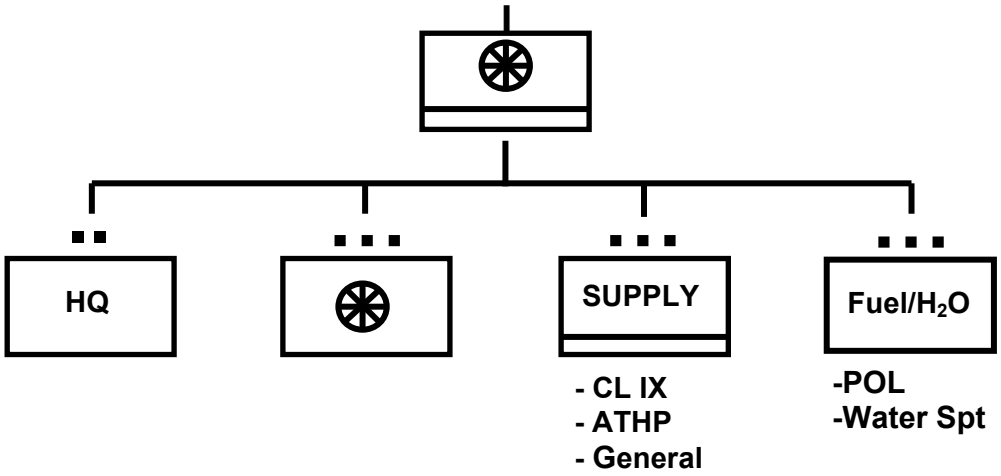

Figure 6-5. Distribution Company, BSB, ABCT.

Mission. Provides transportation and supply support to the ABCT.

Capability.

- Plans, directs, and supervises supply distribution and transportation for the BCT.
- Daily receives, temporarily stores, and issues all classes of supply (less CL VIII) to the BCT.
- Dry cargo (daily):
  256 pallets **OR** 64 USAF 463L pallets **OR,**
  113 ST general cargo less CL V **AND,**
  4 containers **OR,**
  204 ST CL V **AND,**
  4 containers
- CL III Bulk:
  Maintains 1 BCT combat load. Distribute 69,500 gallons/day delivered to FSC.
- Water:
  Purifies 30k gallons/day from fresh water OR 24,000 gallons/day from salt/brackish water (Assuming fielding of water purification LWP @125GPH.) Operates two water points.
  Stores and distributes 32k gallons to 4 FSC simultaneously.

Assignment. Organic, assigned one per BSB.

Mobility. 100 percent.

Major pieces of equipment.

58	Trucks, 5-ton	6	Semi-trailers, van	6	CHU
58	Trailers, 1-½ ton	30	Tractors, 5-ton	2	LWP
15	Semi-trailers, flatbed	7	Forklifts	16	Water tank, 500-gal

***NOTE:** Pending fielding.

Field Maintenance Company (BSB) (ABCT)*
SRC 43327R100

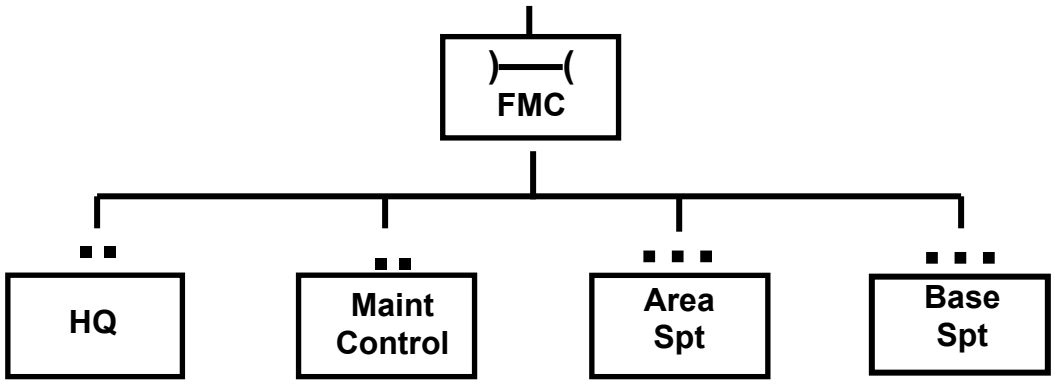

Figure 6-6. Field Maintenance Company, BSB, ABCT.

Mission. Provides field-level maintenance support to the ABCT.

Capability.

- Provides recovery, auto/armament, ground support, and electronics maintenance as well as maintenance management to the BCT.
- Base support platoon performs consolidated maintenance on selected, low-density equipment.
- Provides staff maintenance advice and support to the BCT.

Assignment. Organic, assigned one per BSB.

Mobility. 100 percent.

Major pieces of equipment.

1 Recovery vehicle, M88

Forward Medical Company (BSB) (ABCT)*
SRC 08329R000

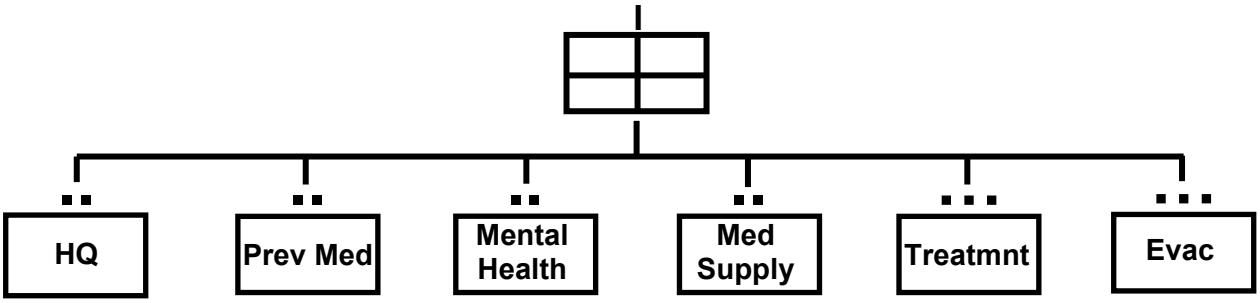

Figure 6-7. Forward Medical Company, BSB, ABCT.

Mission. Provides CHS to the ABCT and units on an area basis in the BCT AO.

Capability.

- Performs triage, initial resuscitation/stabilization, and prepares casualties for further evacuation.
- Evacuates casualties higher with organic ground ambulances.
- Plans and executes aero-medical evacuation, when augmented.
- Provides CL VIII resupply for BCT units.
- Performs patient holding and care for twenty patients.
- Provides support combat units with treatment teams on a limited basis.
- The BSB commander serves as the BCT commander's senior logistician.
- Units are organized, equipped, staffed, and trained to perform distribution-base sustainment operations.

Assignment. Organic, assigned one per BSB.

Mobility. 100 percent.

Major pieces of equipment.

16 Ambulances, M997

Forward Support Company (CA Battalion) (BSB) (ABCT)*
SRC 63327R300

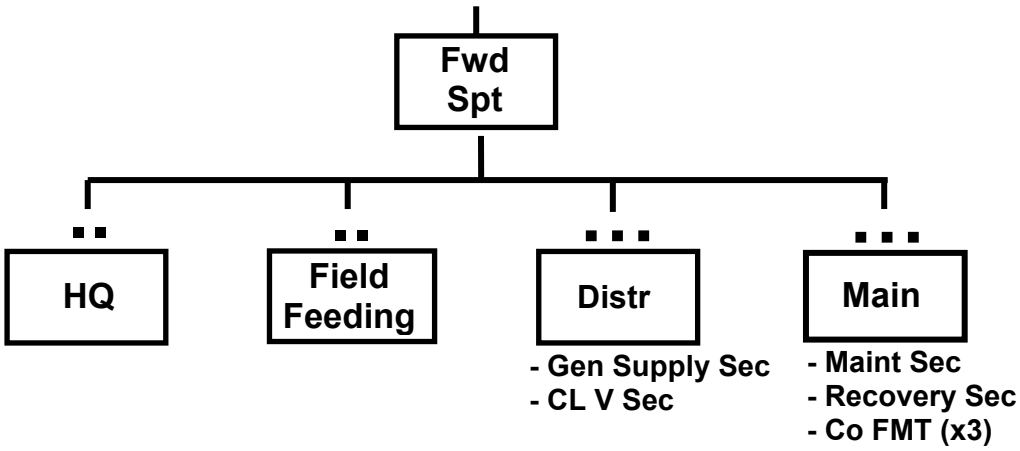

Figure 6-8. Forward Support Company (CA Battalion), BSB, ABCT.

Mission. Provides direct and habitual sustainment to a combined arms maneuver battalion.

Capability.

- Plans, directs, and supervises supply distribution and transportation for the battalion.
- Daily receives, temporarily stores, and issues all classes of supply (less CL VIII) for the battalion.
- Dry cargo:
  56 pallets **OR** 12 USAF 463L pallets **OR,**
  25 ST general cargo less CL V **AND,**
- CL V:
  104 pallets CL V **OR,**
  25 USAF pallets **OR**
  57 ST CL V
- CL III Bulk:
  Maintains 1 BCT combat load.
  Receives/stores/distributes 29,250 gallons/day.
- Water:
  Stores and distributes 4,000 gallons/day.

Assignment. Normally three are assigned per BSB.

Mobility. 100 percent.

Major pieces of equipment.

12	Fueler, M978	5	Trailer, PLS, M1076	2	Water trailer, 2k-gal
5	HEMTT-LHS	10	Flatrack	2	Water trailer, 900-gal
5	Truck, M1075, PLS	5	Recovery vehicle, M88	2	Kitchen, containerized

NOTE: Each BCT type has a varied mix of battalions for which the BSB has organic forward support companies (minus SBCTs). Each FSC is specifically staffed, organized, and equipped to support the various type battalions within each BCT.

Miscellaneous Battalion Headquarters Units

Motor Transportation Battalion
SRC 55716R000

Mission. To command, control, and supervise units conducting motor transport operations.

Capabilities.

- Commands, controls, and technically supervises assigned or attached transportation companies, detachments, and teams.
- Translates transportation requirements into specific vehicles or units required.
- Supervises truck terminals, trailer transfer points, and trailer relay system.
- Coordinates and evaluates highway traffic plans affecting transportation support including terrain, road conditions, and security.

Basis of allocation. One per three to seven subordinate transportation motor transport units in the theater.

Assignment. Assigned to TSC; normally attached to a sustainment brigade.

Mobility. 50 percent.

Major pieces of equipment. N/A

Movement Control Battalion
SRC 55606R000

Mission. To command, control, and supervise movement control teams.

Capabilities.

- Commands and controls 4-10 movement control teams (MCT).
- Coordinates common user land transportation (CULT) assets.
- Serves as MCC, as required.
- Maintains in-transit visibility of tactical and nontactical vehicle movements in theater.

Basis of allocation. One per 4-10 movement control teams (MCT).

Assignment. To a TSC; normally attached to a transportation command.

Mobility. 50 percent.

Major pieces of equipment. N/A

Transportation Terminal Battalion
SRC 55816R000

Mission. Commands, controls, and supervises assigned/attached units performing water terminal operations, to include fixed port or joint logistics over-the-shore (JLOTS) operations.

Capabilities.

- Mission command, control, and technical supervision of units required to load/unload up to four ships simultaneously at an established water terminal or up to two ships simultaneously at a logistics over-the-shore (LOTS) site.
- Mission command for three to seven transportation companies involved in fixed port or JLOTS operations.
- Command element for transportation units conducting intermediate staging base (ISB), inland waterway, or joint amphibious, riverine, and JLOTS operations.

Basis of allocation. One per three to seven subordinate transportation companies or equivalent units.

Assignment. Sustainment brigade (TO) or TSC/ESC.

Mobility. 50 percent.

Major pieces of equipment. N/A

Headquarters and Headquarters Company (HHC)
Petroleum Pipeline and Terminal Operating Battalion
SRC 10416R000

Mission. Provides command, administrative, technical, and operational supervision for operating and maintaining a military petroleum distribution system.

Capabilities.

- Commands 2 to 5 POL pipeline and terminal operating companies (SRC 10417R000), and other assigned and attached units supporting pipeline and terminal operations.
- Plans, controls, and supervises the operation and maintenance of a military petroleum distribution system company 300 km (180 miles) of multi-product petroleum pipelines and terminal facilities. Supervises quality surveillance program of petroleum products.
- Operates a central dispatching scheduling agency for flow of bulk petroleum through the pipeline system.

Basis of allocation. One per two to five QM petroleum pipeline and terminal operating company, SRC 10417R000.

Assignment. May be assigned to a TSC or a sustainment brigade.

Mobility. 33 percent.

Major pieces of equipment. N/A

Petroleum, Oils, and Lubricants (POL) Supply Battalion
SRC 10426R000

Mission. Provides mission command, administrative, technical, and operational supervision of assigned or attached POL supply companies and POL truck companies.

Capabilities.

- Commands 2-5 POL supply/truck companies.
- Provides bulk POL support in theater or to a corps.
- Manages bulk POL support directly to BCTs.
- Directs either a storage- or distribution-based missions.
- Manages corps/theater POL reserve stocks.

Basis of allocation. One per 2-5 POL support companies (SRC 10420R000) and/or transportation medium truck companies (POL), SRC 55727R200 or 55728R200).

Assignment. To HHC and special troops battalion sustainment brigade or TSC. .

Mobility. 33 percent.

Major pieces of equipment. N/A

Ordnance Battalion (AMMO) (DS/GS)
SRC 09666R000

Mission. To command, control, and supervise assigned or attached DS and GS ammunition units.

Capabilities.

- Provides mission command and staff planning for 2-5 subordinate companies.
- Provides technical direction over ammunition support missions of subordinate units.
- Provides a consolidated property book for assigned units.

Basis of allocation. As required.

Assignment. Assigned to sustainment brigade (TO) for the TSC or ESC.

Mobility. 50 percent.

Major pieces of equipment. N/A

Ordnance Battalion (EOD)
SRC 09446R000

Mission. To command, control, and supervise assigned/attached EOD unit operations.

Capabilities.

- Provides mission command and staff planning for 3-7 EOD companies.
- Serves as an EOD special staff office to theater, corps, or division headquarters.
- Coordinates operations to neutralize explosive devices.

Basis of allocation. As required.

Assignment. Assigned to the TSC/ESC or corps and is attached to an EOD group.

Mobility. 100 percent.

Major pieces of equipment. N/A

Medical Units

Medical Command
SRC 08640G000

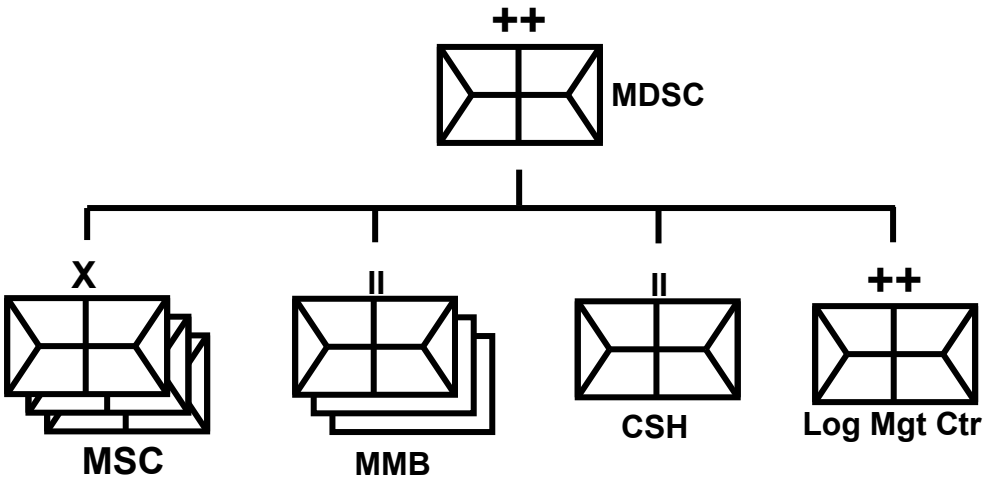

Figure 6-9. Medical Deployable Support Command (MDSC)

Mission. Provides mission command, administration, and technical supervision of assigned and attach-ed medical units.

Capabilities.

- Serves as the senior medical headquarters in theater.
- Commands, controls, coordinates, and organizes theater medical units for HSS in theater.
- Provides staff advice to senior commanders on the medical aspects of operations.
- Performs staff planning, supervision, and administration of assigned and attached medical units.
- Assists with coordinating and integrating strategic capabilities from the sustaining base to the theater AO.
- Coordinates with the United States Air Force (USAF) Theater Patient Movement Requirements Center (TPMRC) for medical regulating and moving patients. Performs consultation services and provides technical advice in all aspects of medical and surgical services.
- Monitors and supervises medical logistic operations.
- Provides veterinary service support for food safety and inspection.
- Performs preventive medicine (PVNTMED) support for medical, occupational, and environmental health (OEH) surveillance, potable water inspections, pest management, food facility inspections, and control of medical and non-medical waste.
- Monitors theater medical threats and provides mitigating capabilities and solutions.

Basis of allocation. One per theater.

Assignment. To the Army Service Component Command (ASCC).

Mobility. See the section I of each subordinate TOE for its mobility requirements and capabilities.

Major pieces of equipment. N/A

Medical Brigade
SRC 08420G000

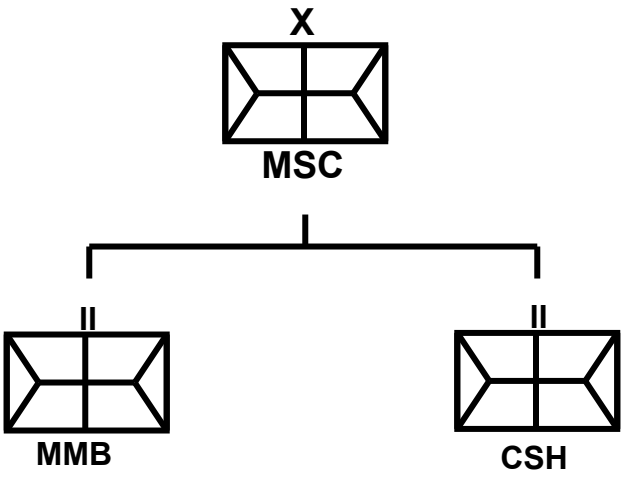

Figure 6-10. Medical Support Command (MSC).

Mission: Provides scalable, flexible, and modular mission command, administrative assistance, logistical support, and technical supervision for medical organizations task-organized for supporting deployed forces.

Capabilities:

- Provides early entry mission command module to rapid deployment response in theater.
- Performs full-spectrum, continuous mission commnad in support of Army, joint, and multinational forces.
- Supervises augmentation to level II BCT medical companies.
- Monitors and supervises medical logistic operations.
- Advises division or corps and BCT commanders on the medical aspects operations.
- Performs medical staff planning, operational and technical supervision, and administrative assistance for multifunctional medical battalions (MMBs) and hospitals.
- Coordinates patient regulating and medical evacuation from MMBs and hospitals to supporting theater medical treatment facilities and CONUS.
- Provides veterinary service support for food safety and inspection.
- Performs PVNTMED support for medical/occupational/environmental health (OEH) surveillance, water inspection, pest management, food facility inspection, and control of medical waste.
- Monitors theater medical threats and provide mitigating capabilities/solutions.

Basis of allocation. One per 2 to 6 subordinate battalions or similar units.

Assignment. Assigned directly to MDSC.

Mobility. See the section I of each subordinate TOE for its mobility requirements and capabilities.

Major pieces of equipment. See individual functional companies.

Multi-Functional Medical Battalion (MMB)
SRC 08485R000

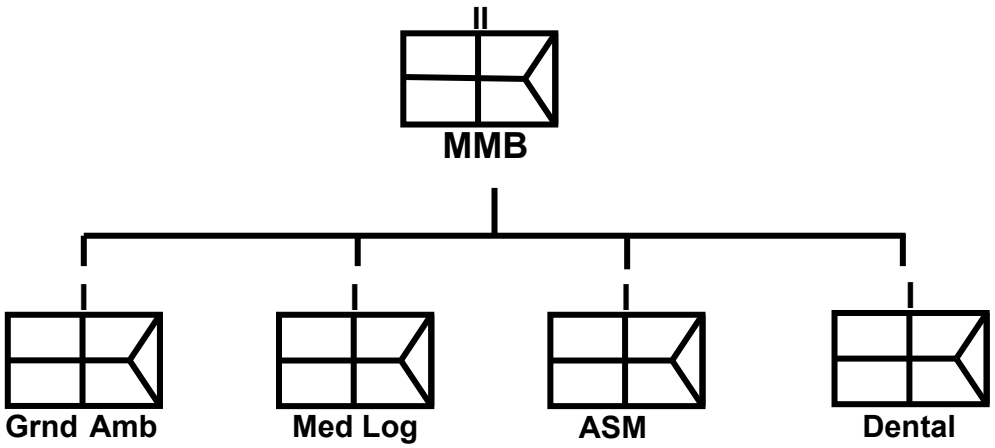

Figure 6-11. Multi-Functional Medical Battalion (MMB).

Mission. Provides scalable, flexible, and modular mission command, administrative assistance, logistical support, and technical supervision for medical organizations (companies and detachments) task-organized for supporting deployed forces.

Capabilities.

- Provides mission command, staff planning, supervision of operations, medical and general logistic support, and administrating assigned or attached units conducting health service support (HSS) operations in the assigned AO.
- Task organizes medical assets to meet projected patient workload.
- Coordinates medical regulating and patient movement within the AO.
- Monitors, plans, and coordinates ground and air evacuation within the battalion AO.
- Coordinates with the supporting aviation unit air evacuation support requirements and synchronizes the air evacuation plan into the overall medical evacuation plan.
- Provides guidance for selecting facility sites and preparing areas.
- Monitors and supervises medical logistic operations.
- Provides advice to senior commanders on the medical operational aspects.
- Plans and coordinates levels I and II HSS operations to units without organic medical assets.

Basis of allocation. One per 3 to 6 medical companies (or 6 to 12 medical detachments) with a working average of 5.

Assignment. Assigned to MDSC or independent MSC**.**

Mobility. See the section I of each subordinate TOE for its mobility requirements and capabilities.

Major pieces of equipment.

8 Truck, cargo
9 HMMWV

Combat Support Hospital (CSH)
SRC 08945R000

Mission. Provides hospitalization/outpatient services for all classes of patients within the theater.

Capability.

- Hospitalization for up to 248 patients in 2 functional hospital companies, one 84-bed and one 164-bed company.
- Provides intensive nursing care for up to 48 patients and intermediate nursing care for up to 200 patients.
- The headquarters and headquarters detachment (HHD) provides mission command for all organic and attached units, including planning policies, support operations, logistical, communications support information management, and laundry operations.
- Has surgical capability, including general, orthopedic, thoracic, urological, gynecological, and oral maxillofacial, based on 96 operating table hours per day.

Basis of allocation. Division/Corps: 3.780 CSHs per 1,000 conventional casualties. Theater: 1.119 CSHs per 1,000 conventional casualties.

Assignment. Assigned to MDSC or MSC**.**

Mobility. See the section I of each subordinate TOE for its mobility requirements and capabilities.

Major pieces of equipment.

30	MILVAN	36	Tent, modular, TEMPER
13	Lift, transportable, shelter, $7^{1}/_{2}$-ton	4	Tank, fabric, water, 3k-gal
10	Generator, 100 kW	16	Truck, 5-ton cargo
14	Shelter, tactical (ISO) (8x8x20 ft)	2	Forklift, 4k

Area Support Medical Company (ASMC)
SRC 08457R000

Mission. Provides Roles I and II HSS to units in the assigned AO.

Capabilities.

- Operates rear-area area clearing stations.
- Treats diseases and minor injuries; performs triage for mass casualties; performs initial resuscitation and stabilization; and, performs advanced trauma management.
- Prepares patients who are incapable of RTD within 72 hours for further evacuation.
- Provides limited medical laboratory, pharmacy, and radiology services commensurate with level II CHS.
- Performs emergency and sustaining dental care and limited preventive dentistry.
- Provides patient holding for up to 40 patients.
- Reinforces, reconstitutes, or replaces medical companies/troops in divisions and in the BCT.

Basis of allocation. One per 10,000 non-BCT troops supported in the committed BDE/DIV HQs/corps HQs, and ASCC area.

Assignment. Multi-functional medical battalion within an MDSC supporting or an MSC.

Mobility. 100 percent (without patients).

Major pieces of equipment.

8 Ambulances, HMMWV

Medical Logistics Company
SRC 08488R000

Mission. Provides direct support CL VIII supply, to BCT and division- or corps-level medical units.

Capability.

- Provides CL VIII supply at a rate of 1.20 pounds per man/day.
- Provides lens fabrication support for up to 22,000 soldiers.
- Receives, classifies, and issues up to 11.1 ST CL VIII supplies per day.
- Stores up to 51 ST CL VIII supply.
- Builds/positions configured loads in support of BCT and division/corps-level units.
- Provides field sustainment medical maintenance within the division/corps AO.
- Deploys early-entry and follow-on forward medical logistic teams.
- Reconstitutes medical logistic units, sections, or teams.
- Coordinates emergency delivery of Class VIII supplies.

Basis of allocation. One per 11.1 short tons of Class VIII required per day.

Assignment. Multi-functional medical battalion within an MSC.

Mobility. 50 percent.

Major pieces of equipment.

10	Truck, MTV, light
2	Truck, MTV
4	Forklift

Medical Logistics Support Company
SRC 08497A000

Mission. Provides direct support CL VIII supply and optical fabrication, repair, and medical equipment maintenance to corps and theater medical units.

Capability.

- Supplies CL VIII proscribed consumption rate of 0.60 pounds per man-day.
- Provides lens fabrication support to a maximum force of 80,000 soldiers.
- Provides medical logistic support for up to 53,000 soldiers in the combat zone, or 77,000 soldiers in the division or corps or 143,000 joint service populations in the Army (theater).
- Receives, classifies, and issues up to 24 ST of CL VIII supplies per day.
- Stores up to 415 ST of CL VIII supplies.
- Provides field sustainment medical maintenance within the division or corps AO.
- Performs field support maintenance for the blood detachments and units within the area without organic medical equipment repairers (MERs).
- Deploys 3 maintenance support teams (MSTs) to units in theater.
- Reconstitutes medical logistic units, sections, or teams.

Basis of allocation. 1 per 24 ST of CL VIII issued per day.

Assignment. Multi-functional medical battalion within an MSC where units lack organic medical maintenance support.

Mobility. 30 percent.

Major pieces of equipment.

12 Truck, MTV
4 Forklift

Ground Ambulance Medical Company
SRC 08453R000

Mission: To provide patient ground evacuation within the Army (theater) of operations.

Capabilities:

- Performs single-lift evacuation of 96 litter patients or 192 ambulatory patients.
- Evacuates patients from BCT medical companies and area support companies to supporting hospitals.
- Reinforces forward (BCT) medical company evacuation assets.
- Moves patients between hospitals, aeromedical staging facilities, aeromedical staging squadrons, mobile aeromedical staging facilities, railheads, or seaports.
- Affects emergency movement of medical supplies.

Basis of allocation. 0.33 per committed BCT, 0.5 per committed division HQs and 2 per committed ASCC.

Assignment. Multi-functional medical battalion within an MSC.

Mobility. 100 percent (without patients).

Major pieces of equipment. 24 Ambulances, HMMWV.

Area Support Dental Company
SRC 08473R000

Mission: Provides operational dental care.

Capabilities:

- Commands and controls subordinate dental elements.
- Offers operational dental care, consisting of emergency and essential dental services.
- Reinforces and reconstitutes forward (ASMC, BCT, DIV/corps) dental assets.
- Deploys 3 forward support treatment sections for far forward care for distant troop concentrations.
- Augments medical units during mass casualty situations.

Basis of allocation. One area support dental company per 43,000 troops (or 1 dentist per 1,175 troops).

Assignment. Multi-functional medical battalion within an MSC.

Mobility. 50 percent (without patients).

Major pieces of equipment.

18	Generators 5kW	3	MSRT T55957
5	Generators 15kW	4	Truck, MTV, light
9	DAGR N96248	13	HMMWV

Air Ambulance Medical Company (GSAB)*
SRC 01225R000

Mission. Provides rapid evacuation of casualties from as far forward as possible in the combat zone.

Capabilities.

- Has single-lift capability of 60 litters or 105 ambulatory patients.
- Provides air evacuation support to BCT medical company in the BSA.
- Provides in-flight medical treatment and patient surveillance.
- Provides cargo capability for moving medical personnel, supplies, and equipment.
- Provides air crash rescue support.
- Its area support section provides 6 UH-60 A/Q in an area aeromedical evacuation role.

Basis of allocation. One company per division; one-third company per BCT; one general support (GS) company in the corps AO per two divisions.

Assignment. Assigned for mission command, maintenance, and administration to combat aviation BDEs.

Mobility. 100 percent.

Major pieces of equipment.

15	UH-60A/Q
4	FARE
12	Drum, fabric, POL, 500-gal

Modular Ammunition Ordnance Company
SRC 09400R000

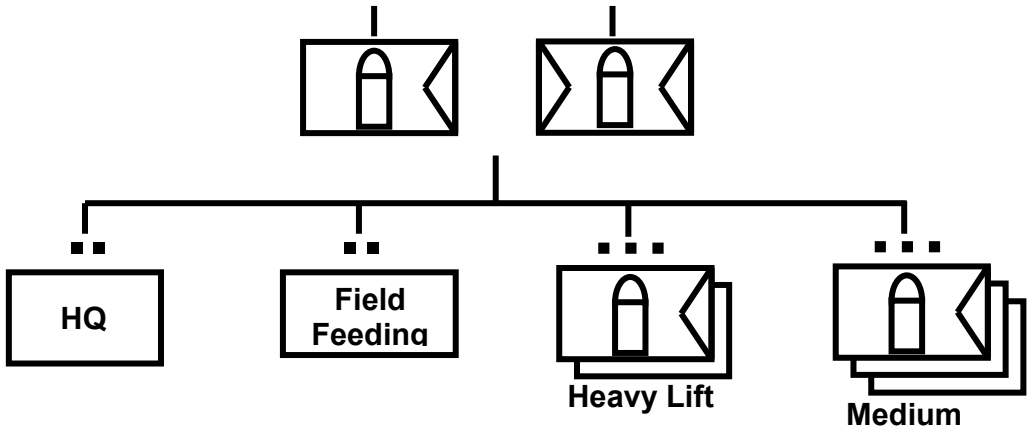

Figure 6-12. Modular Ammunition Ordnance Company.

Mission. Provides modular ammunition operations on an area basis.

Capabilities.

- Commands and controls 2 to 5 platoons.
- Task organized, with 2 heavy lift (SRC 09503RB00) and 3 medium lift (SRC 09503RA000) platoons the company is capable of the following:

Total storage:	56,545 ST	Stores/re-configures:	3,293
Receives:	3,293 ST	Issues:	3,293
Total lift capacity:	9,879 ST		

- Establishes/operates ammunition supply points (ASP) based on the assigned platoons' capabilities.
- As part of an ordnance ammunition battalion (SRC 09666R000), establishes or operates the theater storage area (TSA).

Basis of allocation: As required.

NOTE: Each assigned ammunition platoon (medium or heavy) under normal operating conditions requires a medium truck company (cargo or PLS) to move stocks within the theater storage area (TSA) and/or ASA.

Assignment. Normally assigned to ammunition battalions in the sustainment brigade's CSSB.

Mobility. See the section I of each subordinate TOE for its mobility requirements and capabilities.

Major pieces of equipment.

Heavy Platoon:
4 Forklift, 6k
2 Forklift, 10k
3 Crane, wheeled rough terrain container crane (RTCC)
2 Truck, PLS w/trailer

Medium Platoon:
4 Forklift, 6k
2 Forklift, 6k, VRRT
2 Truck, PLS w/trailer
2 MTV w/trailer

Support Maintenance Company
Company SRC 43470R000

Mission. To provide field maintenance to units on an area basis.

Capabilities.

- The support maintenance platoon performs field maintenance on general automotive, armament, and associated equipment. Performs wheeled vehicle recovery operations; battle damage assessment and repair (BDAR) on site, if possible.
- The allied trades support team provides additional welding and machine shop capability to the field maintenance platoon.
- The armament repair team performs field maintenance on armament and associated equipment. The armament maintenance module provides increased armament repair capacity to the armament repair team. The fire control maintenance team provides increased fire control repair capacity to the armament repair team.
- The support maintenance team provides mobile automotive field maintenance support.
- The electronic equipment maintenance platoon performs field maintenance on radio, computer, electronic data processing, controlled cryptographic items, fiber optical, radiological and related communications equipment.
- The land combat missile system maintenance team provides on site field maintenance (on-system repair or replacement) of land combat electronic missile systems and return to user.

Basis of allocation. As required.

Assignment. Sustainment brigade CSSB.

Mobility. See the section I of each subordinate TOE for its mobility requirements and capabilities.

Major equipment.

1 Wrecker, HEMTT
1 Recovery vehicle, M88

Component Repair Company
Company SRC 43480F000

Mission. Provides sustainment maintenance (off-system component repair) in support of the supply system.

Capabilities.

- The automotive repair platoon provides sustainment maintenance support for automotive end items and components.
- The ground support equipment (GSE) repair platoon provides sustainment maintenance support for GSE.
- The armament repair platoon provides sustainment maintenance support for armament systems, artillery systems, and small arms.
- The electronic repair platoon provides sustainment maintenance support for communication-electronics (COMMEL) equipment.
- The automotive electric repair team provides sustainment maintenance support for automotive electrical components.

Basis of allocation. As required.

Assignment. Sustainment brigade CSSB.

Mobility. See the section I of each subordinate TOE for its mobility requirements and capabilities.

Major equipment.

2	Tractor, 5-ton	2	Tent, maintenance
1	Forklift, 10k	2	Semi-trailer, van, shop 12-ton
1	Forklift, 4k	2	Semi-trailer, van, supply, 6-ton
6	Truck, 5-ton	2	Semi-trailer, van, 12-ton
4	Truck, 2.5-ton		

Quartermaster Field Service Company (Modular)
SRC 10414R000

Mission. Provides DS shower, laundry, and clothing repair (SLCR) support for divisional and non-divisional troops on an area basis.

Capabilities.

- Laundry: 15 lbs/soldier/week (total 315,000 lbs).
- Showers: 500 troops per day or 3,500 per week.
- Delousing support when deemed necessary.
- Limited light textile repair.

Basis of allocation. One company per 21,000 troops.

Assignment. Sustainment brigade CSSB.

Mobility. 100 percent.

Major pieces of equipment.

6 Laundry Advanced Systems (LADS)

Quartermaster Petroleum Pipeline and Terminal Operating Company
SRC 10417R000

Mission. Operates QM petroleum terminal and pipeline facilities to receive, store, transfer, issue, and distribute bulk POL.

Capabilities.

- Ships bulk petroleum products (approximately 720,000 gallons per day) through 125 km (75 miles) of pipeline.
- Operates five pump stations 24 hours per day to deliver bulk petroleum products through 6- or 8-inch multiproduct coupled pipeline.
- Operates POL distribution facilities by coastal tanker, barge, rail cars, and tank trucks.
- Operates 6 each 24-hour/day pipeline pump stations to deliver bulk petroleum.
- Maintains a prescribed reserve of bulk petroleum products for the theater.
- Operates a fuel system supply point (FSSP) for bulk-issue operations.
- Installs and operates up to 8km (5 miles) of tactical hoseline.

Basis of allocation. One company per 75 miles of required pipeline or as required based on stated capabilities.

Assignment. Assigned to petroleum pipeline and terminal operating battalions.

Mobility. 50 percent.

Major pieces of equipment.

2	Tank, fabric, 10,000-gal	2	Hose line outfit, 4”
6	Tank, fabric, 3,000-gal	6	Drum fabric, 250-gal
1	FSSP	1	Pump, 210 gallons per minute (GPM)
2	Forklift RT, 4,000-lb	1	Pump, 100 GPM

NOTE:

- TPT consists of 18 each 210,800-gallon collapsible bags.
- Engineers emplace the pipeline and pump stations.

Quartermaster Petroleum Support Company (PSC)
SRC 10420F100 (50K)
SRC 10420F200 (210K)

Mission. Receives, stores, issues, and distributes bulk POL in support of division/corps or theater operations.

Capabilities.

NOTE: Capability varies depending upon the number of assigned 50K and 201K POL supply platoons.

- PSC with 50k platoons – Up to three platoons, each with storage facilities for 600,000 gallons bulk petroleum at each location for a combined total of 1.6 million gallons per day. Receipt and issue at each tank farm up to 400,000 gallons of bulk petroleum for a combines total of 1.2 million gallons per day.
- PSC with 210k platoons – Up to three platoons, each with storage facilities for 1,680,000 gallons bulk petroleum at each location for a combined total of 5.04 million gallons per day. Receipt and issue at each tank farm up to 645,000 gallons of bulk petroleum for a combines total of 1.935 million gallons per day.
- Each assigned platoon can operate 2 hot refueling sites.
- Requires engineer support for site preparations.

Basis of allocation. One per QM petroleum supply battalion or based on stated capabilities.

Assignment. Normally assigned to a CSSB or a QM POL supply battalion.

Mobility. See the section I of each subordinate's TOE for its mobility requirements and capabilities.

Major pieces of equipment. (3 each 50k platoons and 3 each 210k platoons)

18 FSSP
3 Forward Area Refueling Systems
72 Tank assy, 20k-gal
60 Semi-trailer, 5k-gal
66 Tractor, MTV, 5-ton
90 Cargo, MTV, 5-ton
24 Trailer, 5-ton (fuel POD)

Quartermaster Company
SRC 42940F500

Mission. Provides food service and general supply support in corps or theater of operations.

Capabilities.

- Provide storage of Class I for approximately 24,000 troops. Provide support for maximum of eight Class I supply points, and refrigeration for perishable rations.
- General support and/or direct support of Class II, III(P), IV, VII, and limited Class IX to approximately 8,000 troops, not to exceed platoons capabilities of 69.27 ST per day. The ST capability is based on:

	Platoon
CL II	13.47 ST
CLIII(P)	2.04 ST
CL IV	39.68 ST
CL VII	10.12 ST
CL IX	3.96 ST

- Limited ability to configure loads.

Basis of allocation. One per battalion or based on stated capabilities.

Assignment. QM petroleum pipeline and terminal battalion, QM petroleum supply battalion, or sustainment brigade CSSB.

Mobility. See the section I of each subordinate's TOE for its mobility requirements and capabilities.

Major pieces of equipment.

23	Tractor
22	Semi-trailer, cargo
24	Reefer units 8x8x20 MILVAN
3	Rough terrain container handler (RTCH), Kalmar
7	Forklift, 4k
7	Forklift, 10k
1	Forklift, 50k

Quartermaster Collection Company (MA)
SRC 10490F000

Mission. Establishes, operates, and maintains mortuary affairs (MA) collection points to search for, recover, and evacuate remains.

Capabilities.

- Processes up to 400 remains per day.
- Establishes and operates up to 12 mortuary affairs collection points.
- Evacuates remains to an EAC mortuary affairs company, or as directed by the mortuary affairs program in effect.

Basis of allocation. As required based on expected number of casualties. Each forward collection platoon can provide direct support to four BCTs or it can provide area support in the corps/division area.

Assignment. Sustainment brigade CSSB.

Mobility. See the section I of each subordinate's TOE for its mobility requirements and capabilities.

Major pieces of equipment. (3 forward platoons and 1 main platoon)

14 Truck, light, MTV
18 Containers, refrigerated
10 Semi-trailer, lowbed, $22^{1}/_{2}$-ton
16 Trailer, flatbed
18 Truck, tractor, MTV

Quartermaster Water Purification and Distribution Company
SRC 10460F000

Mission. To provide direct support water purification, storage, and distribution for brigade and echelons above brigade troops on an area basis.

Capabilities. Task organized with two water purification platoons and two water storage and distribution platoons.

- Produces 360,000 gallons of potable water per day using a fresh water source. When using a salt water or brackish water source, production equals 240,000 gallons (two thirds of the fresh water source).
- Distributes 42,000-gallons per day (21,000 per platoon x 2 platoons) using semi-trailer mounted fabric tanks (SMFTs).
- Stores up to 160,000 gallons (80,000 per platoon x 2 platoons) of potable water.
- It uses the standard availability planning factor of 75 percent for water dispensing equipment and vehicles.

Basis of allocation. One per 48,000 troops in a temperate environment – One per 42,700 troops in an arid environment.

Assignment. Sustainment brigade CSSB.

Mobility. See the section I of each subordinate TOE for its mobility requirements and capabilities.

Major pieces of equipment.

4 ROWPU, 3k
4 FAWPSS
6 LWP
4 TWPS
16 Semi-trailer
16 MTV, light
14 Tractor, MTV, 5-ton
14 Semi-trailer, water, 5k

Transportation Light-Medium Truck Company
SRC 55719R000

Mission. To provide transportation support for the movement of bulk cargo, containers, and personnel.

Capabilities.

- Total lift capability: Breakbulk (BB) gen cargo (CGO) 225 ST, BB AMMO 404 ST, 440 pallets, 80 463L pallets, 10 twenty-foot equivalent units (TEU), and 600 personnel.
- The stated capability of the LT/MDM truck company is computed without consideration of the task vehicle availability rate (TVAR). TVAR is the average of the percentage of task vehicles available for mission accomplishment over time and may include variables such as mission distance and duration; vehicle reliability; repair parts delay time; mechanic and driver availability; loading or unloading time; combat losses. A TVAR of less than 100 percent reduces the stated capability of the unit.

Basis of allocation. One per sustainment BDE in the theater Army and one half company per APOD. Additional units may be required based on workload to move smaller shipments in a hub-and-spoke distribution operation.

Assignment. Sustainment brigade CSSB or transportation battalion operating at either the tactical or operational level.

Mobility. 50 percent.

Major pieces of equipment.

50 FMTV Cargo trucks
25 Trailer, FMTV
10 FMTV Tractor trucks
20 Semi-trailer, M871 ½ T

Transportation Medium Truck, Cargo Company (40-Ton)
SRC 55727R100

Mission. To provide transportation for the movement of containerized, non-containerized, palletized, dry and/or refrigerated cargo, and bulk water products.

Capabilities.

- Total lift capability: BB gen CGO 447 ST, BB AMMO 803 ST, 1080 pallets, 240 463L pallets, 120 TENs, 60 forty-foot equivalent units (FEU), 240,000 GAL water (when equipped with HIPPO), 247,000 GAL water (when equipped with 5K SMFT).
- This unit can transport bulk water only when equipped with SMFTs, or Load Handling System-compatible water tank rack. The HIPPO consists of a 2,000-gallon potable water tank in an ISO frame with an integrated pump, engine, alternator, filling stand, and 70-foot hose reel with bulk suction and discharge hoses. A HIPPO tank-rack holds 2,000 gallons and is equivalent to one TEU. Each trailer can carry a maximum of two TEUs. A trailer mounted with a 5K SMFT cannot haul any other commodity.
- The stated capability of the medium cargo truck company is computed without consideration of the TVAR.

Basis of allocation. As required based on stated capabilities.

Assignment. To a TSC, normally attached to a CSSB.

Mobility: 50 percent.

Major pieces of equipment.

60	Truck, M915
120	Semi-trailer, M872

Transportation Medium Truck, Cargo Company (22 ½ Ton)
SRC 55728R100

Mission. To provide transportation for the movement of containerized, non-containerized, palletized, dry and/or refrigerated cargo, and bulk water products.

Capabilities.

- Total lift capability: 288 pallets, 840 463L pallets, 180 twenty-foot equivalent units (TEU), 180,000 gallons water (when equipped with 3K SMFT).
- This unit can transport bulk water only when equipped with SMFTs. A trailer mounted with a 3K SMFT cannot haul any other commodity.
- The stated capability of the medium truck company is computed without consideration of the TVAR.

Basis of allocation. As required based on workload and stated capabilities.

Assignment. To a TSC, normally attached to a CSSB.

Mobility: 50 percent.

Major pieces of equipment.

60	Truck, FMTV
120	Semi-trailer, M871

Transportation Medium Truck Company (POL) (7,500 gal)
SRC 55727R200

Mission. To provide transportation for the movement of bulk petroleum products.

Capabilities.

- 7,500-Gallon Semi-Trailers: 60 each; total 450,000 gallons.
- The stated capability of the medium POL truck company is computed without consideration of the TVAR.

Basis of allocation. As required, based on workload and stated capabilities.

Assignment. To a TSC, normally attached to a quartermaster petroleum supply battalion.

Mobility. 50 percent.

Major pieces of equipment.

60 Tractor, M915
60 Semi-trailer, tanker, 7,500-gallon

Transportation Medium Truck Company (POL) (5,000 gal)
SRC 55728R200

Mission. To provide transportation for the movement of bulk petroleum.

Capabilities.

- 5,000-gallon wemi-trailer: 60 each; total 300,000 gallons.
- The stated capability of the medium POL truck company is computed without consideration of the TVAR.

Basis of allocation. As required, based on workload and stated capabilities.

Assignment. To a TSC, normally attached to a CSSB.

Mobility. 50 percent.

Major pieces of equipment.

60 Tractor, M1088
60 Semi-trailer, tanker, 5,000-gallon

Transportation Medium Truck Company (PLS)
SRC 55728R300

Mission. To provide ground transportation for the movement of dry and refrigerated containerized cargo, and other BB CGO, ammunition, and bottled water on PLS flat-racks. When equipped with tank racks or hippos, can transport bulk water and bulk petroleum products.

Capabilities.

- Standard availability planning factor: 90.5 percent.
- Standard lift planning factor for PLS:
  CL V: 14 ST per truck and trailer (or 28 ST per system).
  Dry cargo: 11 ST per truck and trailer (or 22 ST per system).
- Daily lift planning factor:

Way	Local Haul	Line Haul
Containers, 20-ft	216	108
Cargo, palletized	1,728 ST	864 ST
CL V	1,370 ST	685 ST

Basis of allocation. As required, based on workload and stated capabilities.

Assignment. To a TSC, normally attached to a CSSB.

Mobility. 50 percent.

Major pieces of equipment.

60	Truck, cargo, heavy, PLS transporter, M1075
60	Trailer, palletized, loading, M1076
120	Flatrack

Combat HET Company
SRC 55739R000

Mission. Initial mission is port clearance and force closure, then unit is available to relocate heavy maneuver forces on the battlefield. Once the force is closed, mission is for tactical displacement of armor brigade combat teams. Also performs recovery and evacuation mission for equipment to higher levels of repair.

Capabilities.

- Standard lift planning factor: 40-ton/HET for general cargo.
- Standard availability planning factor: 90 percent.
- One-time lift: 86 tracked combat vehicles (Six of these units operating simultaneously can relocate a brigade-sized heavy maneuver force, double loading increases capacity).
- Daily lift planning factor:

Way	**Local Haul**	**Line Haul**
M1 tank	172	86
M2/M3 (2 vehicles/HET)	344	172
Cargo, dry	12,040 ST	6,020 ST

Basis of allocation. Three companies per ABCT, one per sustainment BDE, one per theater opening element, and work loaded for port clearance, based upon the stated capabilities of the unit.

Assignment. To a TSC, normally attached to a motor transportation battalion or a CSSB.

Mobility. 50 percent.

Major pieces of equipment.

96 TRK Tractor, HET, XM1070
96 Trailer, HET, 70-ton

Inland Cargo Transfer Company
SRC 55819F000

Mission. To discharge, load and transship cargo at air, rail or truck terminals, theater distribution centers (TDC), and centralized receiving and shipping points (CRSP).

Capabilities. Operation on a 24-hour, two-shift basis, this unit can accomplish one of the following:

- In rail intermodal or truck terminal operations: transship 2,400 STs of BB CGO or 600 containers.
- In air terminal operations: transship 1,500 STs of BB CGO or 600 containers.
- At inland terminals can perpetuate cargo documentation and redocument diverted or reconsigned cargo.
- During container operations can pack and unpack containers; however, this capability degrades other capabilities.
- Performs as an arrival or departure control group (A/DACG).
- Operates a cargo marshalling area, as required.

Basis of allocation. As required, based on stated capabilities.

Assignment. To a TSC, normally attached to a CSSB.

Mobility. 50 percent.

Major pieces of equipment.

16 PLS, HEMTT
16 Trailer, HEMMT
16 Rough terrain forklift (RTFL), 10,000-lb
8 RTFL, 4,000-lb
8 RTCH, 50,000-lb
4 Truck, Tractor (Yard Dog) 23T

Seaport Operations Company
SRC 55838F000

Mission. Performs seaport terminal service operations to discharge/load containerized cargo and wheeled/tracked vehicles in fixed seaports or logistics-over-the-shore (LOTS) sites. Coordinates seaport clearance and onward movement with supporting movement control and motor transport units.

Capabilities.

- Fixed port: discharge/load 375 containers; or 1,875 ST BB CGO; or 750 vehicles per day.
- LOTS operations: discharge/load 150 containers; 750 ST BB CGO; or 450 vehicles per day.

Basis of allocation. As required, based on stated capabilities and workload.

Assignment. To a TSC, normally attached to a HHD, transportation terminal battalion.

Mobility. 33 percent.

Major pieces of equipment.

10	Tractor, 5-ton
20	Semi-trailer
4	HEMMT LHS
8	RTCH, 50,000-lb
6	ATLAS
4	RTFL, 4,000-lb

Modular Causeway Company
SRC 55848R000

Mission. Provides movement support for cargo and equipment during intra-theater lift, water terminal, waterborne tactical and joint amphibious, riverine and joint logistics over-the-shore (JLOTS) operations.

Capabilities.

- One floating causeway (FC) pier consisting of from 1 to 17 non-powered causeway sections (CSNP) (up to 1,200 feet in length), with a dry bridge for the discharge of cargo and equipment from lighters directly to an unimproved shoreline or degraded fixed port facility.
- One causeway ferry (CF) consisting of one causeway section powered (CSP) and up to three (CSNP) for moving rolling stock, BB, and containerized cargo from ship to shore.
- Two roll-on/roll-off discharge platforms (RRDF) consisting of up to 18 CSNP each that interfaces between RO/RO ships and lighterage for the rapid discharge of rolling stock.

Basis of allocation. One per TSC.

Assignment. To a TSC, and normally attached to a transportation terminal battalion. May be attached to the U.S. Navy or the U.S. Marine Corps to support joint amphibious, riverine, or JLOTs operations.

Mobility. 33 percent.

Major pieces of equipment. N/A

Heavy Watercraft Company
SRC 55829R000

Mission. To perform waterborne transportation of personnel, cargo and equipment during intratheater lift; water terminal, waterborne tactical and joint amphibious, riverine, or JLOTS operations.

Capabilities.

- Ten landing craft, utility (LCU): Each LCU provides waterborne transportation of 350 ST or 12 (24 double-stacked) 20-foot containers.
- Each LCU-2,000 can transport 5 M1 tanks or 24 20’ containers.
- Each vessel can conduct ship to shore or short duration transport of up to 320 combat-equipped personnel IAW appropriate Army regulations. Additional safety equipment may be required for personnel movements.

Basis of allocation. One per TSC; normally attached to a transportation terminal battalion.

Assignment. To a TSC, normally attached to a transportation terminal battalion.

Mobility. 33 percent.

Major pieces of equipment. 10 LCU-2,000 landing craft.

Floating Watercraft Company
SRC 55889R000

Mission. To perform floating craft and harborcraft operations during intratheater lift, water terminal, waterborne tactical and joint amphibious riverine or JLOTS operations.

Capabilities.

- One barge to transport up to 324 ST of deck-loaded dry cargo or 93,000 gallons of bulk fuel. Serves as a refueling point for Army watercraft operating in the area.
- Small tugs perform water terminal and inland waterway operations.
- Large tugs perform ocean-going recovery, towing, and salvage. Performs general purpose harbor duties and firefighting service.
- Crane discharges/loads heavy lift cargo.

Basis of allocation. One per large sea port of debarkation (SPOD).

Assignment. Normally assigned to a transportation terminal battalion under the mission command of the sustainment BDE responsible for port opening operations.

Mobility. 33 percent.

Major pieces of equipment.

1	Tugboat, large
2	Tugboats, small
1	Crane, floating
1	Barge, fuel

PART II: US MARINE CORPS

6-1. COMBAT SERVICE SUPPORT CAPABILITIES

This chapter summarizes the missions, capabilities, basis of assignment, and mobility for Marine logistics group (MLG) units. The MLG provides direct support to the Marine expeditionary force (MEF) ground combat element (GCE) and general support and sustained tactical-level logistic support above the organic capabilities of supported elements of the MEF. The MLG is a permanently structured command that constitutes the logistics combat element (LCE) of the MEF. When manned and equipped at full tables of organization and equipment (TOE) levels, the MLG can support a MEF. The MLG includes a headquarters for command and control, a combat logistic regiment X7(CLRX7), a CLR DS, a CLR GS, an engineer support battalion, and a dental battalion that provide tactical logistics along functional lines. Like functions are generally centralized at the regiment or at a separate battalion level to facilitate command and control, tasking and training coordination, and equipment maintenance. Within the limits of their responsibilities, each regiment and separate battalion provides personnel and equipment to source task-organized LCEs established to support Marine air-ground task forces (MAGTFs). Marine Corps logistics consists of transportation, supply, maintenance, services, medical, dental, and engineer support. Engineer support consists of bridging, utilities, explosive ordnance disposal, bulk fuel and water purification, horizontal construction, and material handling equipment. This chapter also includes the naval mobile construction battalion's (SEABEES) *capabilities*.

**** Note:** The Marine Corps is currently finalizing its' future MLG structure design. Marine logistics units are traditionally functionally-aligned battalions and are restructured into a direct support and general support logistics regiment. CLRX7 provides command and control, administration, communications, food

services, services, landing support and terminal operations and security support to the MLG. CLRX7 serves as the forward echeloning headquarters of the MLG or as the logistics combat element (LCE) headquarters for a Marine expeditionary brigade-sized Marine air-ground task force (MAGTF). CLRX7 provides landing support, terminal operations and services support beyond supported unit organic capabilities, to the Marine expeditionary force (MEF) or smaller MAGTFs. Additionally, CLRX7 provides the logistics combat element (LCE) for Marine expeditionary units (MEU).

The Marine logistics group (MLG) is the Marine Corps' sustainment provider to the Marine expeditionary force (MEF). The MLG is a composite of functional components that provide sustainment above the organic capability of supported units. All elements of the MLG provide permanently organized sub-elements to support independently deployed battalions, regiments, MEUs, or geographically separated units.

The most significant attribute of the MLG is that it is permanently organized and responsible for sustainment MEF functions beyond unit organic capabilities. It is organized, staffed, and equipped to support one Marine division, plus one Marine air wing per MEF, and four MEUs simultaneously. Figure 7-1 shows the MLG as the MEF's sustainment element. Figure 7-2 depicts the MLG's functionally organized battalions and personnel strengths.

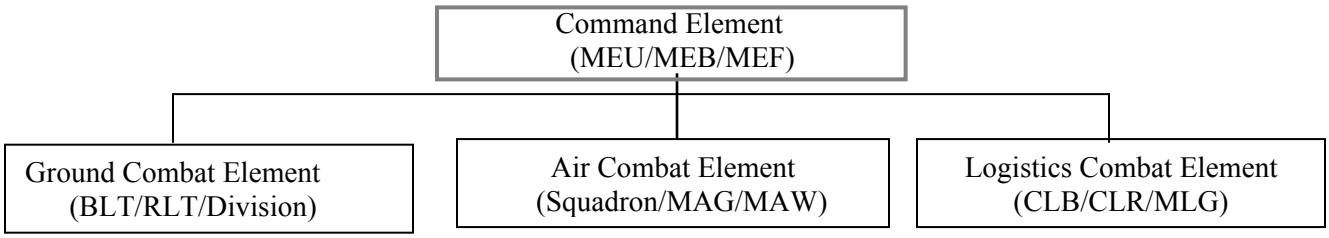

Figure 6-13. The MLG's Organizational Structure.

Marine Logistics Group

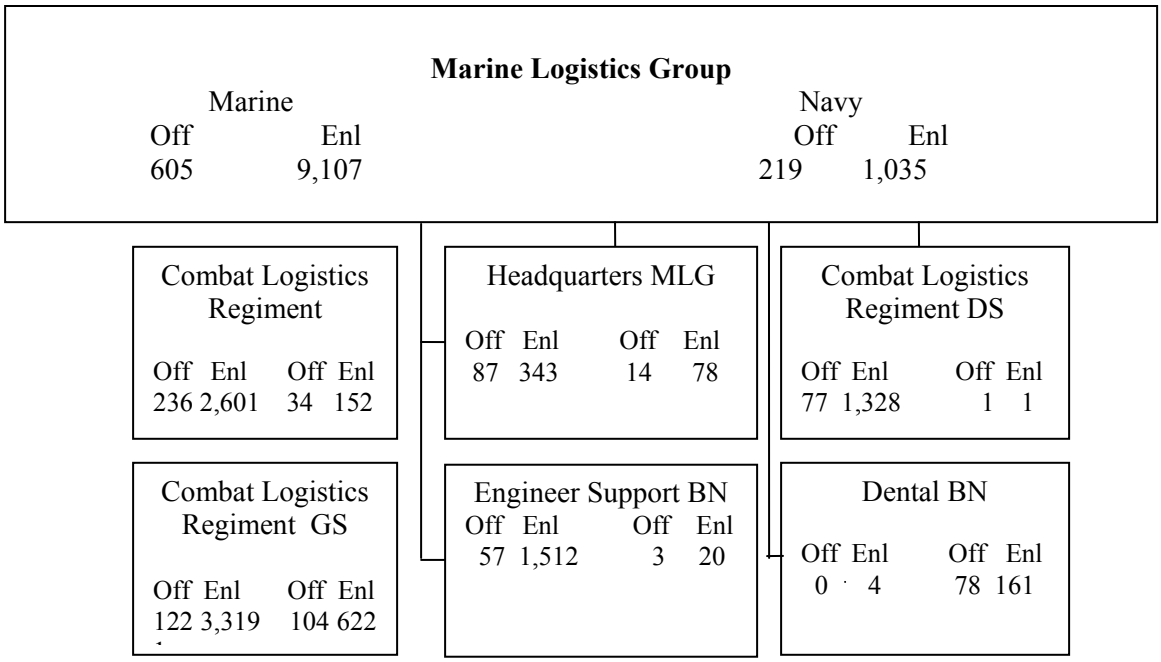

Figure 6-14. Marine Logistics Group.

Headquarters, Marine Logistics Group

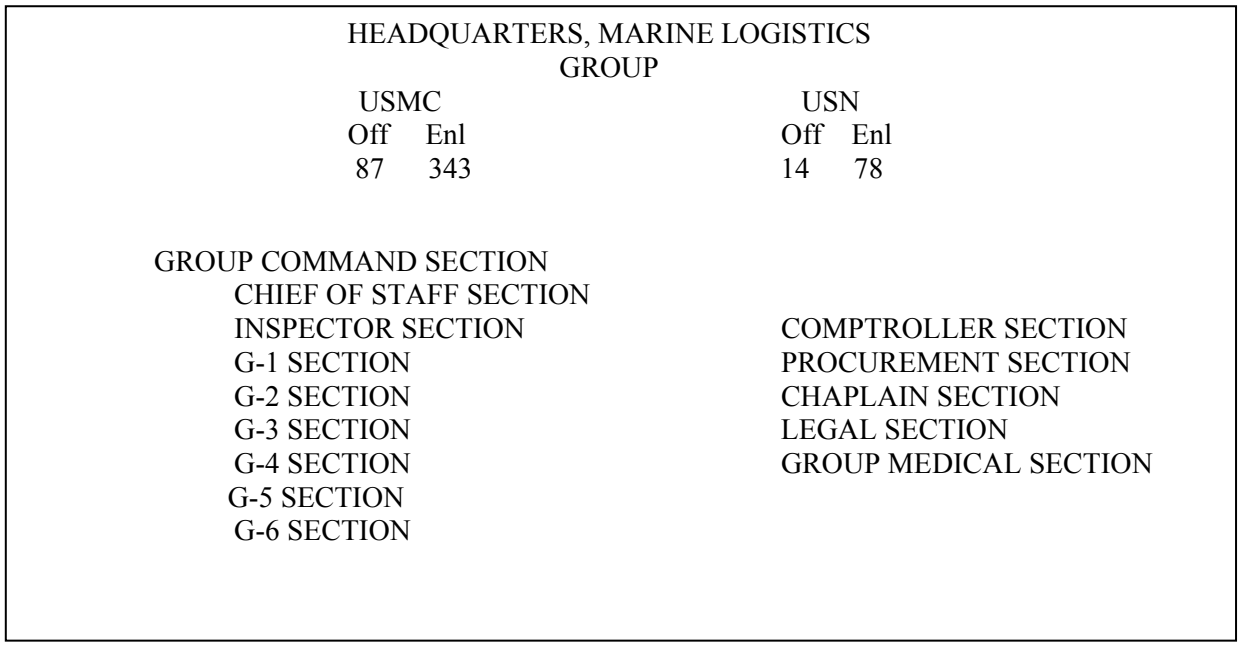

Figure 6-15. MLG Headquarters.

Mission. Provide command and control, and command support functions for the MLG HQTRS.

Capabilities. The MLG HQ provides food service, administrative support, postal, exchange, disbursing, grave registration, communications for MLG CEs, battlespace control, EPW management, area security, and the nucleus staff for coordinating MEF marshalling and deployment support.

Basis of allocation. One per MEF.

Major pieces of equipment. Due to the continuing reorganization, equipment sets are not available.

Combat Logistics Regiment (CLR)

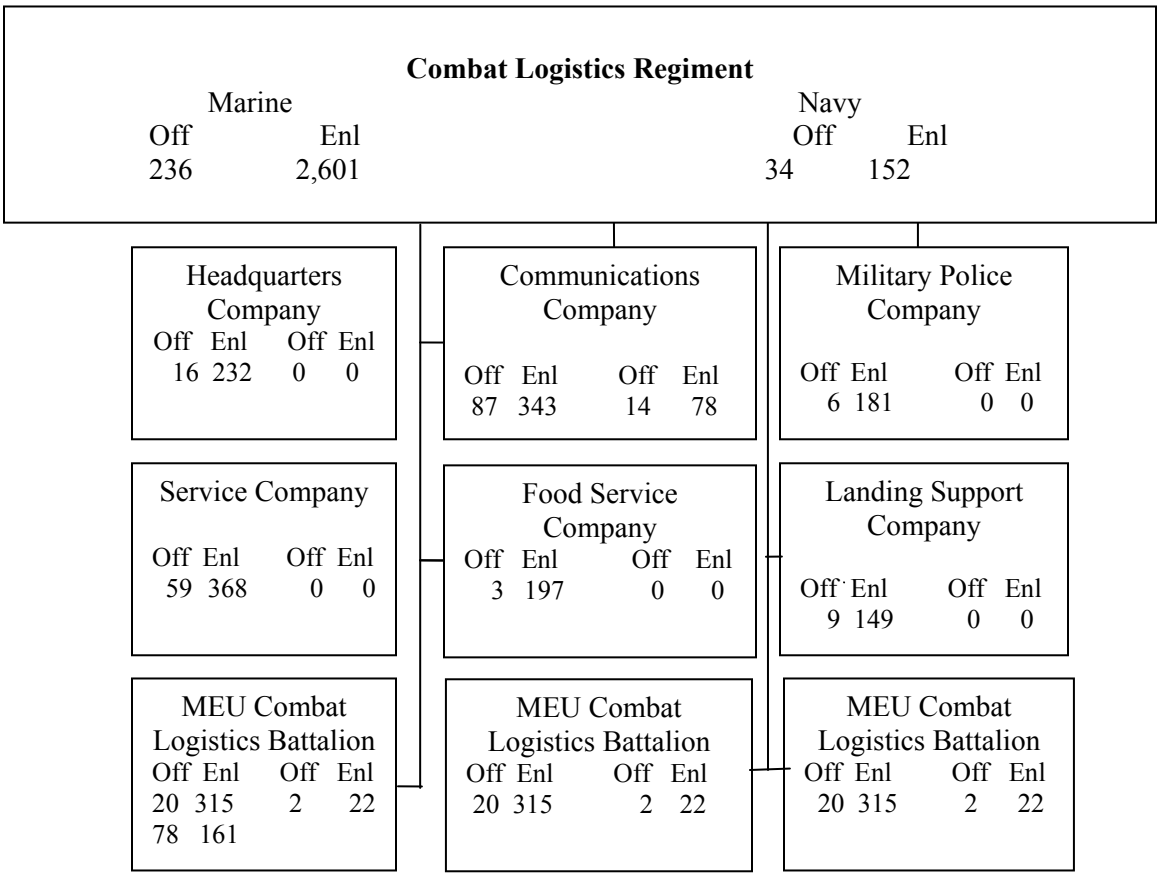

Figure 6-16. Combat Logistics Regiment.

Mission. Provide command and control, administration, communications, food services, services, landing support and terminal operations, and security support to the MLG. Serve as the forward echeloning headquarters of the MLG or as the logistics combat element (LCE) headquarters for a Marine expeditionary brigade-sized Marine air-ground task force (MAGTF). Provide landing support, terminal operations and services support beyond supported unit organic capabilities, to the Marine expeditionary force (MEF) or smaller MAGTFs. Provide the logistics combat element (LCE) for MEUs.

Capabilities. Provide necessary command support functions for the MLG and CLR x7.

- Provide services support to the MEF and MAGTFs smaller than a MEF, beyond organic capabilities of supported units, in the subfunctional areas of disbursing, postal, exchange, legal, and personnel retrieval and processing.

- Provide landing support and port and terminal operations in support of MAGTF operations. Provide the nucleus personnel and equipment required for a landing force support party.

- Provide communications support for the MLG headquarters, subordinate MLG organizations, and LCEs of MAGTFs.

- Provide security support to the MLG, to include: battlefield circulation control; area security; enemy prisoner of war (EPW) management; and support for the maintenance of law and order.

- Provide food service support to the MLG and beyond supported unit organic capabilities to the MEF, excluding the aviation combat element.

- Provide the nucleus staff for the coordination of marshalling and deployment support for the MEF, with necessary augmentation from supported units as required.

- Provide general support tactical logistics support to MEUs.

Basis of allocation. One per MEF. Structured to facilitate task organization for landing support and throughput operations conducted in support of the MAGTF.

Major pieces of equipment. Due to the continuing reorganization, equipment sets are not available.

Combat Logistics Regiment, General Support (GS)

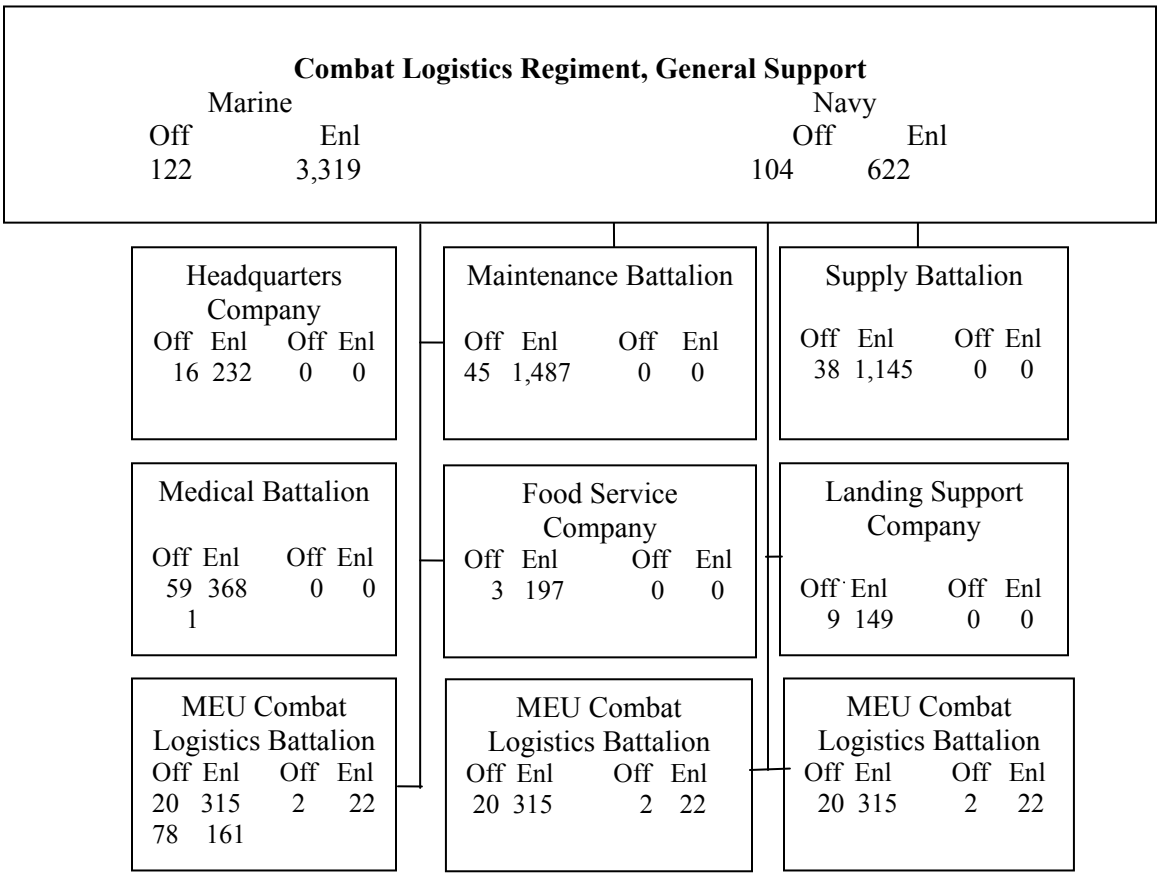

Figure 6-17. Combat Logistics Regiment (GS).

Mission. Provides general support and intermediate maintenance support for Marine Corps tactical ordnance, engineering, motor transport, communication electronics, and general-support MEF equipment.

Capabilities. Provides third-echelon maintenance (30-level) on end items. Provides intermediate (40- level) maintenance to support the secondary repairable program, including repairing and rebuilding end-item components and subassemblies. Provides a tracked-vehicle evacuation capability. Provides electronic and mechanical TMDE calibration services. Provides organizational (10- to 20-level) and intermediate (30- to 40-level) end-item maintenance. Provides technical assistance and overflow organizational (10-to 20-level) maintenance for support units, as directed by higher headquarters. Provides intermediate maintenance and modification applications on in-stock equipment. Provides technical inspection services, as required, to support MEF equipment maintenance programs.

Basis of allocation. One per MEF.

Supply Battalion

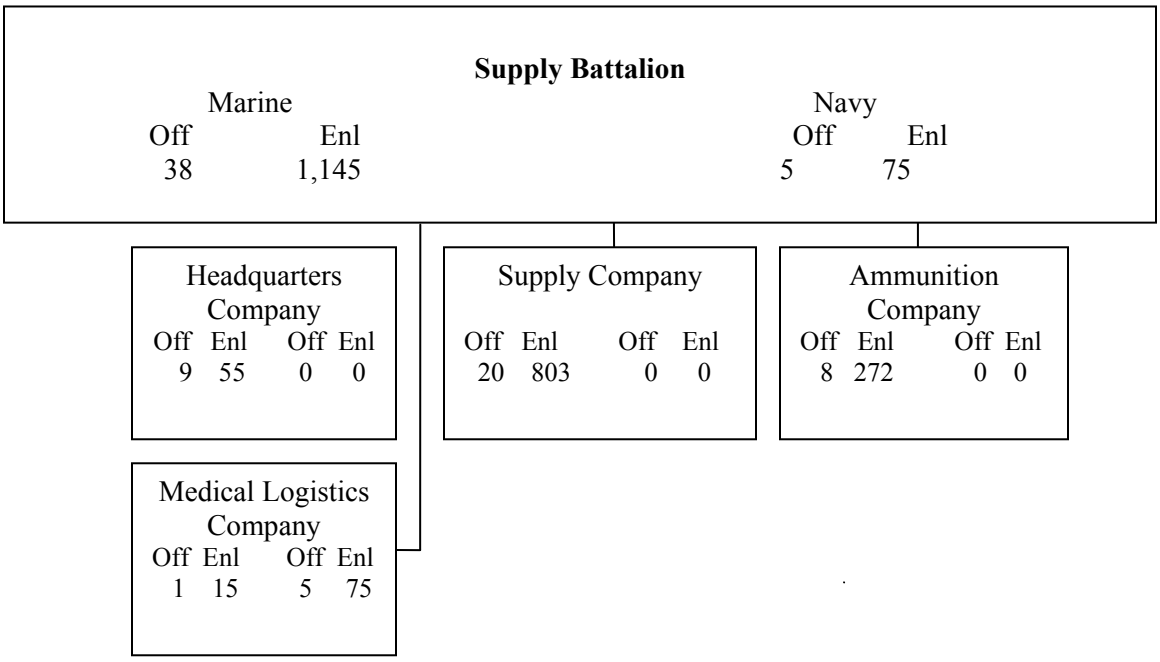

Figure 6-18. Supply Battalion.

Mission. Provides general support supply support (less bulk fuel and Navy-funded programs), for sustaining MAGTF operations.

Capabilities. Provides supply support management, for the MLG and other MEF elements beyond the supported units' organic capabilities, including stock control functions. Provides contracting support and cross-servicing services for supported units, as required. Provides a warehousing capability to support the MEF. Provides accounting for Classes I, II, IV, VII, VIII, and IX supplies, initial issue provisioning assets, and authorized levels of war reserve. Provides subsistence support to the MEF, including operating Class I subsistence dumps and storing, issuing, and accounting for subsistence items. Provides receipt, storage, and forwarding of Class III (packaged) supplies. Provides receipt, storage, issue, and accounting functions for Class V items. Provides technical assistance in receiving, storing, assembling, and providing nuclear ordnance. Provides for receiving, storing, issuing, and organizing (field level) and intermediate (sustainment level) maintenance support for Class VIII supplies and equipment. Provides packing, preserving, and packaging (PP&P) services.

Basis of allocation. One per MEF.

Medical Battalion

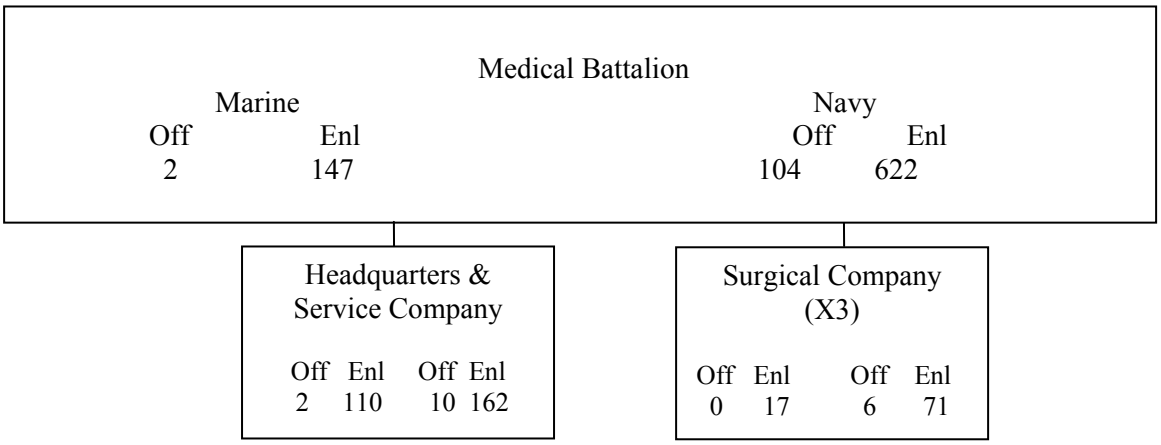

Figure 6-19. Medical Battalion.

Mission. Provides direct and general support MEF medical support.

Capabilities. Provides the MEF with health care through the second medical care echelon; this includes initial resuscitative care, resuscitative surgery, and temporary casualty hospitalization. Provides the MEF with medical regulating services; provides the medical elements to establish casualty decontamination and treatment stations; provides medical support to manage mass casualties and combat stress casualties. Provides level 1 through level III.

Basis of allocation and employment. One per MEF. The medical battalion is organized to plan, coordinate, and supervise the MEF's medical support functions. It is structured to facilitate organizing operations tasks conducted by the battalion to support the MEF or any combination of smaller MAGTF's operating in widely-separated geographical areas.

Maintenance Battalion

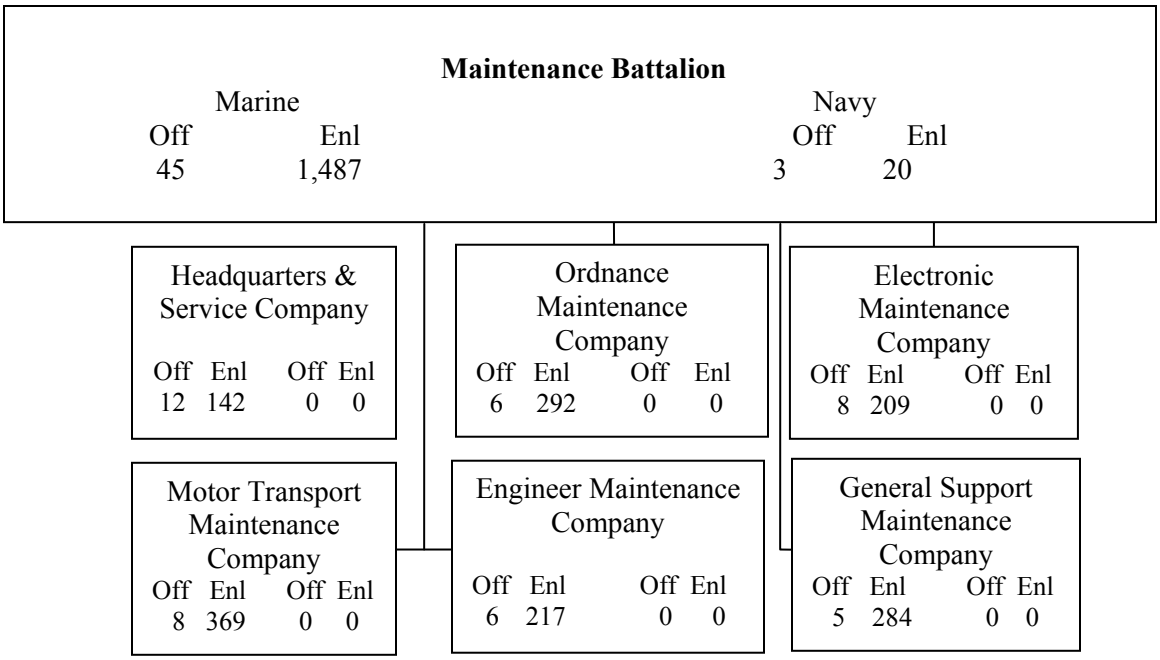

Figure 6-20. Maintenance Battalion.

Mission. Provide general support field level maintenance support, to include component repair, for Marine Corps-furnished ground equipment of the Marine expeditionary force (MEF), less communications–electronics equipment.

Capabilities. Provide command and control and command support functions for the battalion in support of the MEF and Marine Air-Ground Task Force (MAGTF) operations. Provide field-level maintenance on end items by means of component/subassembly replacement or repair. Provide field-level maintenance in support of the secondary reparable program, to include fault verification/isolation and repair of components and subassemblies of end items. Provide a tracked and wheeled vehicle recovery capability beyond the supported unit's organic capabilities. Provide calibration services for Marine Corps-furnished radiac, electrical and mechanical test, measurement, and diagnostic equipment. Provide technical assistance and overflow operator/crew-level maintenance for supported units, as directed by higher headquarters. Provide field-level maintenance and modification applications. Provide field-level technical inspection and maintenance services, as required, in support of equipment maintenance programs of the MEF.

Basis of allocation. One per MEF. The battalion establishes and operates direct and general support field level maintenance facilities in support of the MEF, or any combination of smaller MAGTFs. When not deployed as a battalion, the structure supports MAGTF operations through detachments from each of the functional companies, task-organized to provide the full range and depth of field maintenance.

Engineer Support Battalion

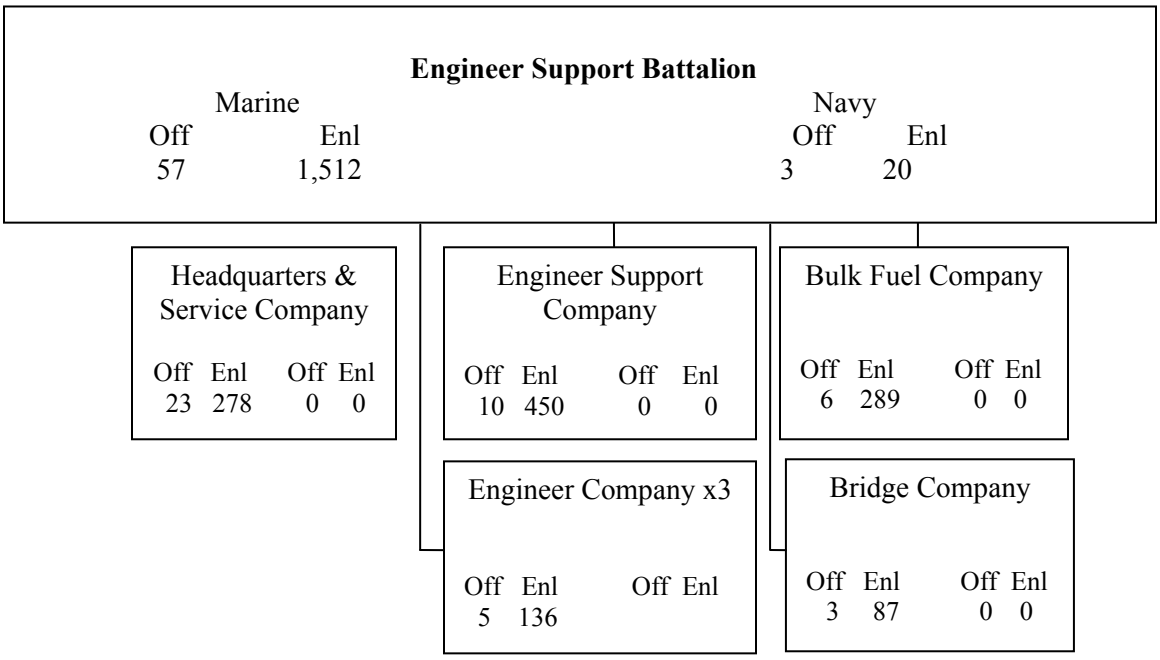

Figure 6-21. Engineer Support Battalion.

Mission. Provide general expeditionary engineering support to the MEF, including survivability, countermobility, mobility enhancements; EOD; and general support for handling, storing, and dispensing bulk Class I (water), bulk Class III, and III(A) items.

Capabilities. Conducts engineering reconnaissance necessary for the battalion and/or MEF's mission Constructs, improves, and maintains airfields. Constructs, improves, and maintains encampments, and other MEF-required support. Conducts mobility enhancement operations, including constructing, improving, and maintaining lines of communications and main supply routes. Provides bulk Class III and III(A) fuel support, including receiving, storing, and dispensing bulk fuel products. Provides utilities support, including mobile electric power beyond supported units' capabilities and electrical power distribution within camps and sustainment. Provides water purification and bulk Class I (water) storage and dispensing for the MLG and for other MEF elements. Provides survivability enhancements, including protective structures. Installs/supervises standard and nonstandard, fixed-panel and floating bridging to support MEF mobility requirements. Provides bath and laundry. Provides EOD support to the MEF. Conducts countermobility. Conducts mobility operations, including breaching, reducing, and removing explosive or non-explosive obstacles. Provides specialized demolition operations.

Basis of allocation and employment. One per MEF.

Marine Expeditionary Unit (MEU)
Special Operations Capable (SOC)
Combat Logistics Battalion

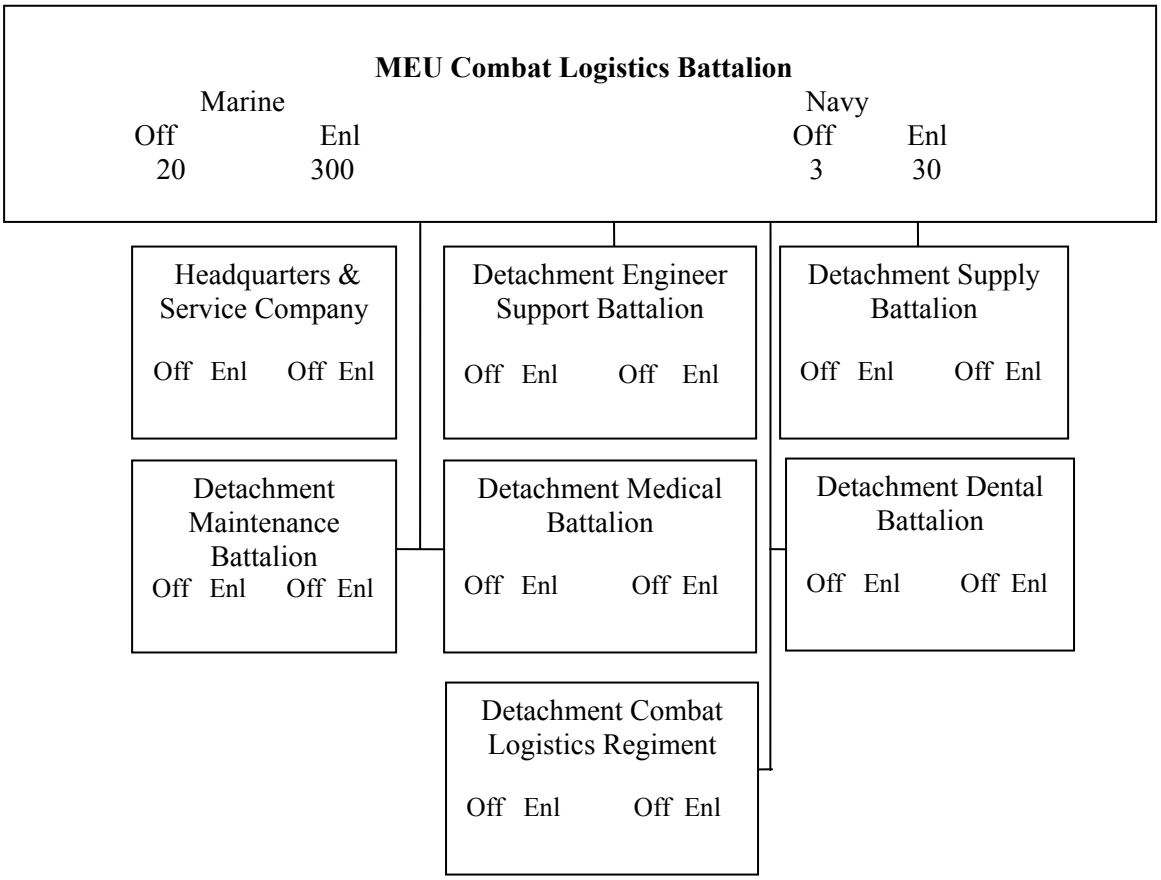

Figure 6-22. MEU CLB.

Major pieces of equipment. For a notional MEU CLB.

2	ROWPU, 600 GPH	18	Truck, cargo, 7-ton
5	Truck, refueler, 5k-gal	2	Excavator, combat, M9
18	HMMWV, troop carrier	1	Tank, retriever, M88A1
1	AAVR7, recovery vehicle, w/23-ton crane	1	Tractor, D7, Caterpillar
5	Truck, LVS, power unit, 12.5-ton	11	Trailer, water, 400-gal
4	Trailer, LVS, container hauler, 22.5-ton	4	Tank, water, mobile, 1,800-gal
1	Trailer, LVS, wrecker	4	Tank, collapsible, water 3k-gal

Bulk Liquid	
Fuel	Stores 15,000 gal, deliver 15,000 gal
Water	Stores 23,600 gal, deliver 11,600 gal
Produce Water	
From non-potable	1,200 GPH x 20 hrs per day 24,000 gal

Marine Expeditionary Unit
Special Operations Capable (SOC)

The MEU (SOC) is the standard forward-deployed Marine expeditionary organization. Though each Marine expeditionary unit (special operations capable) is task organized, a typical Marine expeditionary unit includes—

- A standing command element.
- An infantry battalion reinforced with artillery, reconnaissance, engineer, armor, and assault amphibian units.
- A reinforced helicopter squadron with transport, utility, and attack helicopters, a detachment of vertical/short takeoff and landing (V/STOL) fixed-wing attack aircraft, and other detachments, as required.
- A task-organized combat service support element (CSSE).
- Sustainment for 15 days.

The LCE for the MEU is the Marine expeditionary unit combat logistics battalion (CLB). The MLG provides MEU CLBs with the necessary personnel and equipment to accomplish their missions. The CLBs provide the MEU with the following sustainment:

- Supply support.
- Maintenance support.
- Transportation support.
- Deliberate engineering support.
- Medical and dental services.
- Utilities support.
- Disbursing services.
- Legal services.
- Postal services.
- Landing support (port/airfield support operations).
- Automated information processing support.
- Accompanying supplies (Classes I, II, III[B], IV, V[W], and IX) necessary to support the MEU for 15 days.

Combat Logistics Regiment, Direct Support (DS)

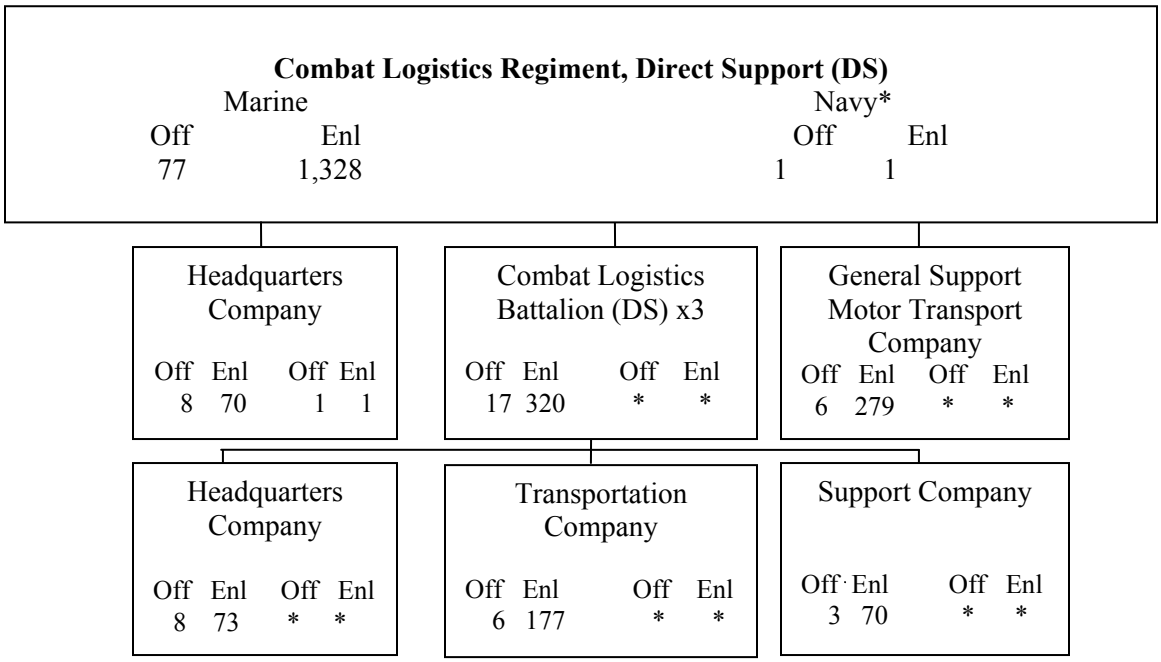

Figure 6-23. Combat Logistics Regiment (DS).

*When deployed, Navy personnel are attached from the medical battalion in the general support CLR based on mission.

Mission. Provide direct support tactical logistics to the Marine expeditionary force (MEF) ground combat element (GCE) beyond their organic capabilities.

Capabilities. Provide command and control and command support functions for the CLR DS in support of MEF GCE (ground combat element) operations. Provide direct support motor transport, materials handling equipment, intermediate-level supply coordination and limited support in the areas of field-level maintenance and general engineering to the MEF GCE. When augmented, provide direct support forward resuscitative health care capability to the MEF GCE. Provide bulk liquids distribution, medium- and heavy-lift motor transport support to the MEF GCE. Provide limited field-level maintenance for ordnance, motor transport, engineering, and communications-electronics equipment of the MEF GCE. Coordinate additional support requirements from the MLG, as required.

The CLR DS is organized to plan, coordinate, and supervise the direct support operations of the regiment. It is structured to facilitate habitual relationships with the Marine division and infantry regiments. CLBs are task-organized for operations in direct support of the MEF GCE. The CLR coordinates and provides direct support tactical logistics to the MEF GCE beyond their organic capabilities. The regiment is normally employed as a complete organization in direct support of the MEF GCE under the control of the regimental commander. CLBs and/or detachments may be task-organized to support a specific operation or unit.

Basis of allocation. One per MEF.

Marine Wing Support Squadron
Fixed Wing (FW) and Rotary Wing (RW)
Marine Aircraft Wing

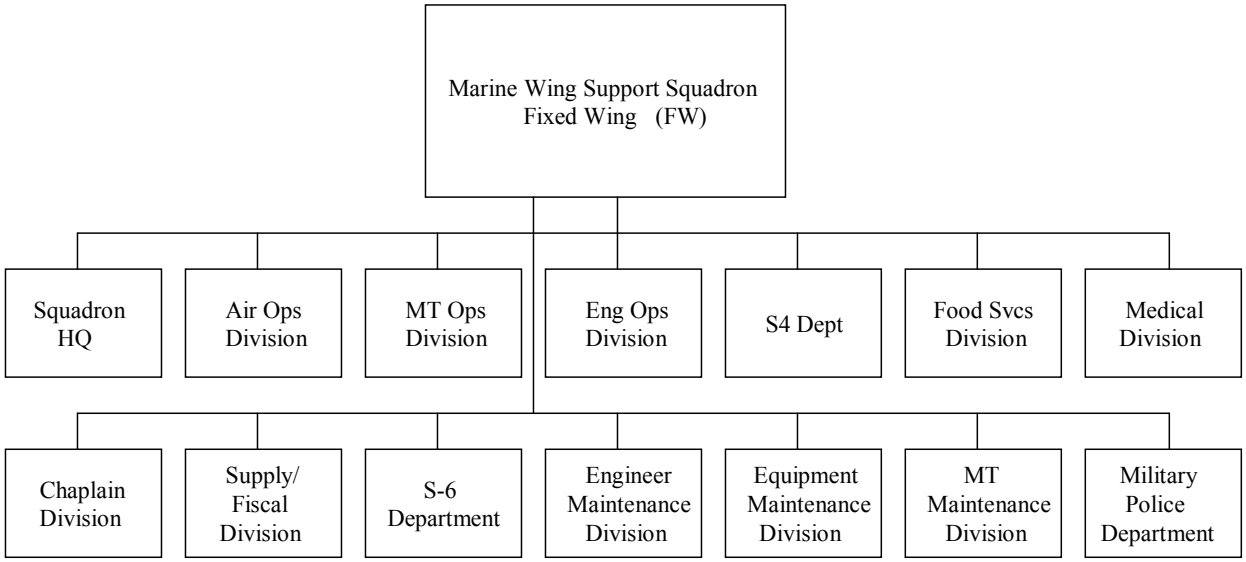

Figure 6-24. Marine Wing Support Squadron, Fixed Wing (FW), and Rotary Wing (RW).

Mission. Provides aviation ground support for fixed-wing/rotary-wing ACE component and supporting/attached Marine air control group (MACG) elements.

Capabilities. The MWSS conducts airfield operations (less air traffic control) for ACE unit(s). These operations include: internal airfield communications; weather services; expeditionary airfield services, including maintaining aircraft recovery equipment; crash/fire/rescue and structural firefighting equipment; aircraft and ground refueling; essential engineer services, including engineer reconnaissance/ survey; repair, improvement, and maintenance of existing road nets within the ACE area of responsibility; construction and maintenance of expedient roads; construction/improvement and maintenance of V/STOL facilities; construction and maintenance of mission-essential base camp requirements, including tactical airfield fuel distribution systems and helicopter expeditionary refueling system installations; utilities support, including essential mobile electric power, water, and hygiene support; equipment and personnel required for rapid runway repair; material handling equipment to support base operations; limited mine detection capability; and limited combat engineer services; motor transport for operations internal to the air base; messing facilities; routine and emergency sick call and aviation medical functions; and security and law enforcement services.

CARGO per squadron (FW) (RW)	
Trucks, medium	168 ST for general cargo
Trucks, heavy	
Semi-trailer, lowbed	160 ST (40-ton capability per trailer)
Bulk Liquid (FW)	
Fuel	Stores 561,800 gal, delivers 63,000 gal
Water	Stores 1,028,000 gal, delivers 36,800 gal
Produce Water per squadron (FW)(RW)	
From non-potable	2,400 GPH x 20 hrs per day 48,000 gal
From potable	12,000 GPH x 20 hrs per day 240,000 gal

Basis of allocation and employment. Two FW and 2 RW per MEF. The MWSS will normally function as a squadron.

Major pieces of equipment.

Crane, high speed, 25k	2 FW/2 RW	Crane, air mobile, 4k	2 FW/2 RW
Drum fabric, collapse, 500-gal	18 FW/90 RW	Tank, fabric, collapse, 50k	18 FW/12 RW
Tank, fuel, collapse, 3k	3 FW/15 RW	Tank, fabric, collapse, 20k	18 FW/12 RW
Tank, fuel, mobile	16 FW/16 RW	Tank, water, mobile	18 FW/15 RW
Tank, fabric, collapse, water	45 FW/45 RW	Trailer, tank water, 400-gal	11 FW/11RW
Power dist sys, 15kW	20 FW/12 RW	Power dist sys, 30kW	6 FW/6 RW
Power dist sys, 100kW	4 FW/4 RW	Tactical fuel dispensing system	3 FW/3 RW
Tractor, full track, D7	3 FW/ 3 RW	Tractor, full track, w/bucket	2 FW/ 2 RW
Tractor, AWD, excavator, b/hoe	2 FW/ 2 RW	Truck, forklift, extnd boom 10k-lbs	9 FW/ 9 RW
Forklift, 4k-lbs	6 FW/ 6 RW	Tractor, articulated steer, 10k-lbs	9 FW/ 9 RW
ROWPU 600 GPH	4 FW/ 4 RW	Water, fresh, purifier, 1,500 GPH	4 FW/ 4 RW
Water, fresh, purifier, 3k GPH	3 FW/ 3 RW	Truck, LVS, pwr unit, 12.5k	10 FW/10 RW
Trailer, LVS, wrker, recovery	1 FW/ 1 RW	Truck, aviation refuel, 5k-gal	7 FW/ 7 RW
Semi-trlr, lowbed, 40-ton	4 FW/ 4 RW	Truck, ambulance, 4 liter, armd	3 FW/ 3 RW
Truck, 7-ton, xlongbed, w/wnch	20 FW/20 RW	Truck, firefighting, P19A	6 FW/ 6 RW
Truck, dump, 7-ton	4 FW/ 4 RW	HMMWV, troop carrier	57 FW/57 RW

Truck Company, Marine Division

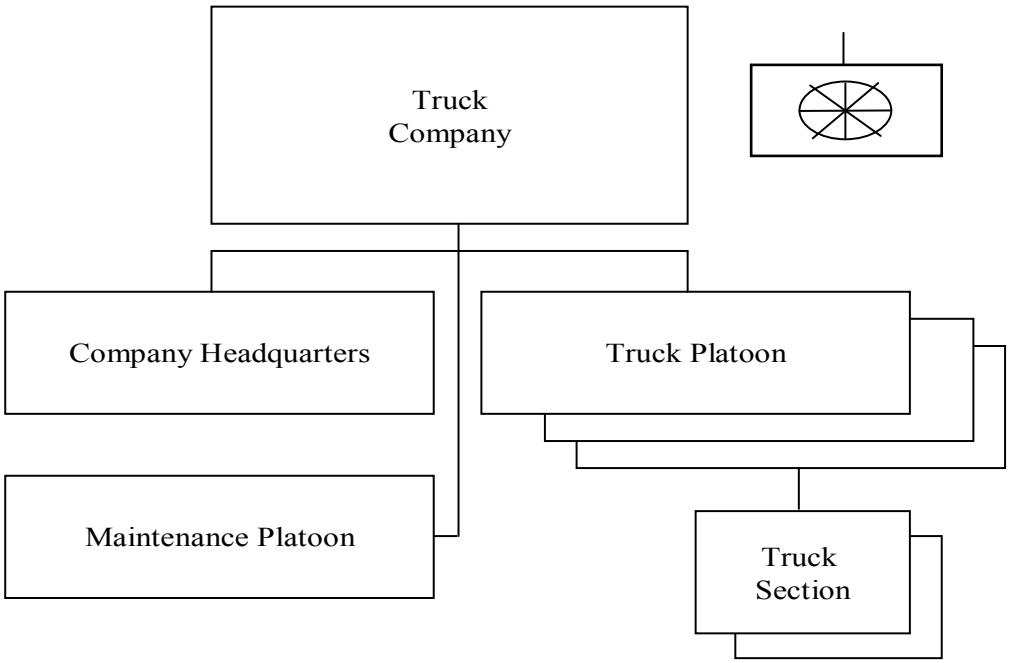

Figure 6-25. Truck Company, Marine Division.

Mission. The truck company provides limited tactical mobility to the Marine division.

Capabilities. The truck company is a combat support asset of the Marine division. It is capable of transporting two infantry battalions' assault elements simultaneously.

Cargo	
Trucks, medium	735 ST for general cargo
Bulk Liquid	
Fuel	Stores/delivers 10,800 gal
Water	Stores/delivers 5,200 gal

Basis of allocation and employment. One per MEF. Truck platoons will normally be attached to or placed in direct support of infantry regiments and are capable of sustained operations on a 24-hour basis. Normally the tactical situation will require that the truck company's motor transport assets be used to augment subordinate division units' limited organic capabilities.

Mobility. 100 percent.

Major pieces of equipment.

6	Tank, fuel, mobile	13	Trailer, tank water, 400-gal
105	Truck, cargo, 7-ton, w/winch	57	Trailer, cargo 1.5-ton
13	HMMWV, troop carrier		

Naval Mobile Construction Battalion (NMCB), Naval Construction Regiment (SEABEES)

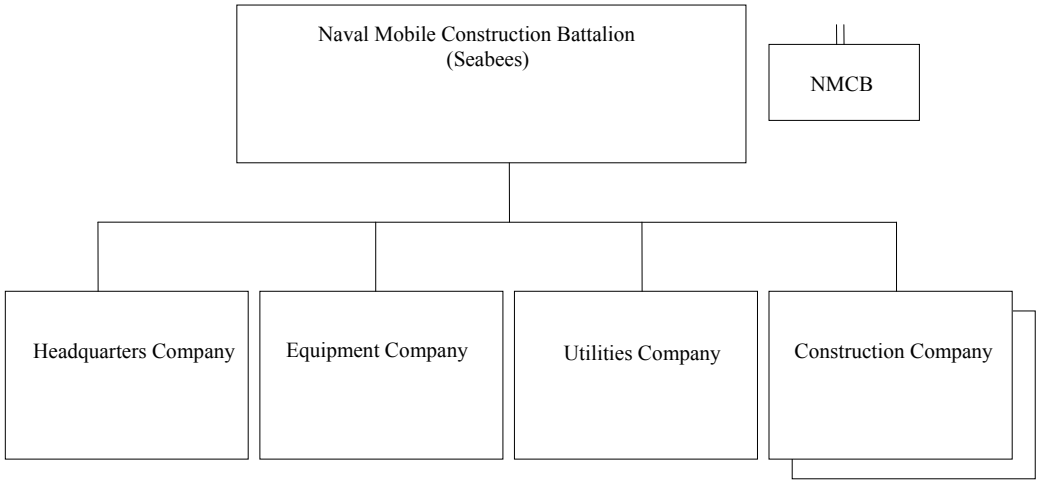

Figure 6-26. Naval Mobile Construction Battalion (NMCB), Naval Construction Regiment SEABEES.

Mission. The NMCB provides responsive military construction support to Navy, Marine Corps, and other forces in military operations; to construct and maintain base facilities; to repair battle-damaged facilities, and to conduct limited defensive operations as required by the circumstances of the deployment situation. It can also accomplish disaster control and recovery efforts, when required.

Capabilities. Performs horizontal and vertical construction simultaneously while defending their project sites from hostile forces. Deploys an Air DET with airliftable supplies and equipment within 48 hours of notification. The remainder of a deployed NMCB can embark within 6 days. Conducts active defensive operations against overt or clandestine enemy attacks directed toward unit personnel, convoys, camps, and facilities under construction. Performs intermediate maintenance on organic and assigned augment equipment simultaneously with construction effort. Nearly 85 percent of each NMCB can deploy as an air echelon via strategic airlift (approximately 44 C-17, or 30 C-5 lift equivalents), with the remaining 15 percent, known as the sea echelon, following via sealift. Additionally, the NMCB maintains an organic table of allowance (TA) capable of sustaining construction operations planned or envisioned under contingency or general war conditions for 60 days without resupply, except that Class I materiel is limited to 5 days, Class III is limited to 3 days, and Class V is limited to 15 days. Class IV is limited to only those materials required to construct the NMCB's base camp. Resupply past the timeframes noted is the responsibility of the supported MAGTF's G-4, to be coordinated through the appropriate NCR's command element if the NMCB is task-organized in an NCR. The NMCB is capable of conducting construction operations in a MOOTW environment, and in unsecured and isolated locations without the supported MAGTF's protection.

Bulk Liquid	
Fuel	Stores and delivers 56,800 gal
Water	Stores and delivers 38,000 gal

Naval Mobile Construction Battalion (NMCB), Naval Construction Regiment (SEABEES)

Basis of allocation and employment. Four per MEF or 1 per MEU, when assigned. The NMCB can function as an integral unit of a naval construction regiment (NCR), or can operate independently. The NMCB can provide specialized, task-organized detachments up to one-half its organizational size to address specific support requirements.

Mobility. 100 percent.

Major pieces of equipment.

10	Truck, cargo, 7-ton	8	Truck, tractor, 8-tons
16	Truck, dump, 8-ton	10	Truck, tractor, 15-tons
2	Truck, wrecker, 25-ton	2	Truck, refueler, 5k-gal
20	HMMWV, troop carrier	8	HMMWV, armament carrier
2	HMMWV, ambulance	10	Semi-trailer, ISO, 40-ft, 34-ton
13	Semi-trailer, lowbed, 40k	26	Tank, storage, fuel, 1,800-gal
10	Tank, storage, water, 1,800-gal	2	Tank, water, 8k-gal
10	Trailer, water, 400-gal	4	Electrical distribution system, 15kW
3	Electrical distribution system, 30kW	6	Electrical distribution system, 60kW
2	Laundry unit, field	2	Truck, container handler, 50k
5	Forklift, 4l-lbs	6	Forklift, 12k-lb
2	Loader, backhoe	3	Tractor, full-track, w/ripper
2	Crane, 35-ton	2	Crane, wheeled, 14-ton

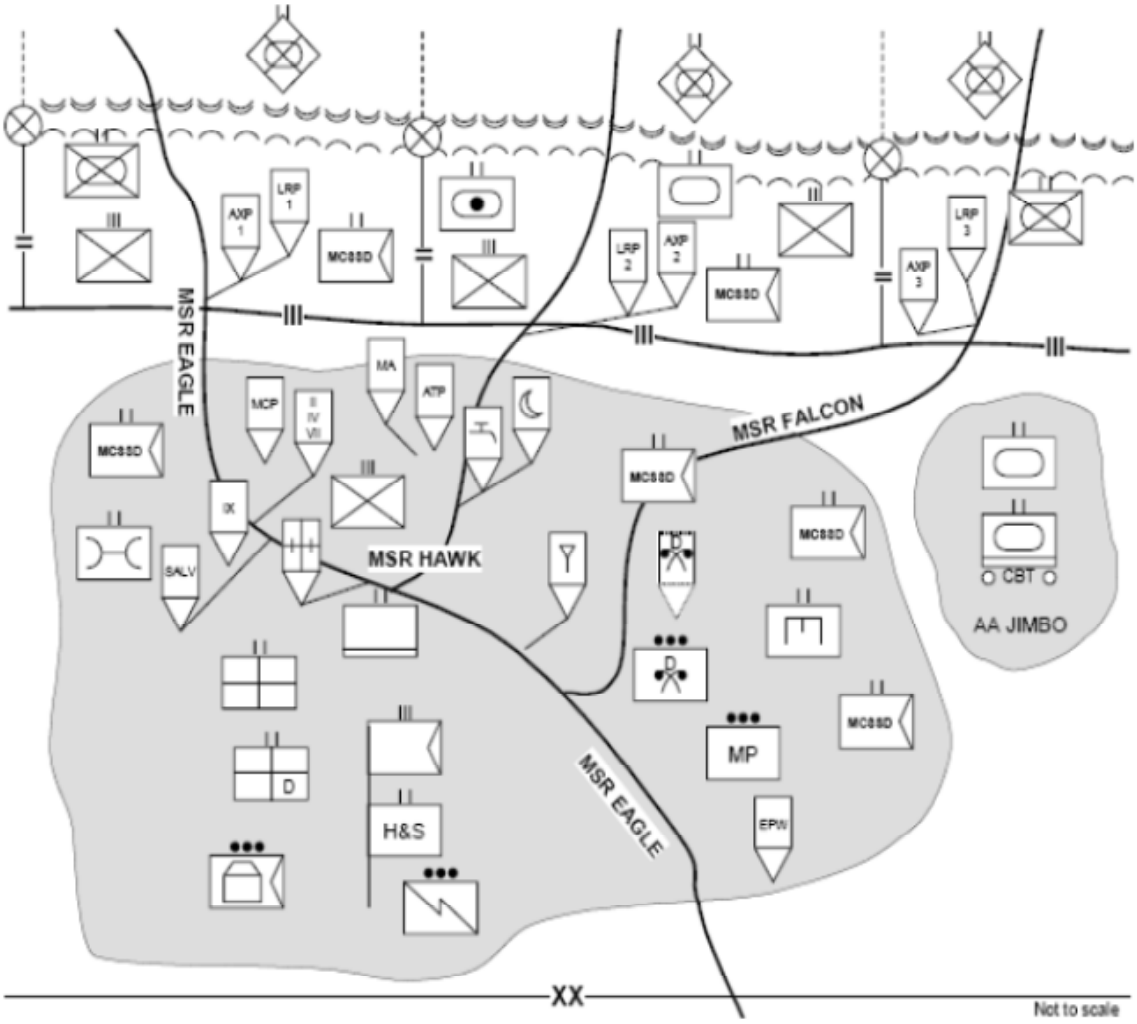

Figure 6-27. Logistics Concept.

Mobile combat service support detachments (MCSSD) have been replaced with direct support combat logistics battalions. CLR (DS)

6-2. LOGISTICS

Marine Corps support organizations. The combatant commander and his staff (principally the J-4, Logistics Directorate) plan and oversee logistics from a theater's strategic perspective. They assign execution responsibilities to service components unless a joint or multinational functional command is formed to perform the theater's strategic logistical functions. The Joint Staff and combatant commanders generate and move forces and materiel into theater and areas of operations where operational logistical concepts are employed. Headquarters, Marine Corps (HQMC) and the Marine Corps supporting establishment (SE), augmented by the Marine Corps Reserve, plan and conduct Marine Corps strategic logistical support (with the exception of aviation-peculiar support). Both have inherent logistical capabilities and specific logistical responsibilities at the strategic, operational, and tactical levels of war. The primary mission of the HQMC and the SE is to provide manpower and logistical support to the operating forces. Responsibilities and capabilities overlap because no organization or level of support can function effectively without extensive, continuous coordination between supported and supporting

organizations. The Headquarters, Marine Corps uses information from and coordinates with Marine Corps operating forces and the Marine Corps Reserve, the Joint Staff, and the supported or supporting combatant commanders to establish and affect strategic logistics.

Headquarters, Marine Corps. Staffs, departments, and divisions of HQMC are responsible to the Commandant of the Marine Corps for administrative management, policy, and provision of service support for the operating forces, the Marine Corps Reserve, and the SE. The Commandant of the Marine Corps (CMC) delegates authority for designated matters of Marine Corps logistical policy and management to the Deputy Commandant for Installations, and Logistics. This authority includes liaison and coordination for logistical action with HQMC staff principals, Marine Corps commanders, sister-services, the Joint Staff, and DOD agencies. Responsible for designated aviation specific logistical policy and management, the Deputy Commandant for Aviation coordinates logistical action with other agencies.

Supporting establishment. The Marine Corps SE is responsible for manning and equipping the operating forces and is the source of Marine Corps strategic logistics. The Marine Corps SE consists of bases, stations, training activities, formal schools, the Marine Corps Recruiting Command, the Marine Corps Combat Development Command (MCCDC), and the Marine Corps Materiel Command (MARCORMATCOM). Logistical support is a significant focus of MCCDC. Each division within the MCCDC establishes logistical branches and sections to ensure that logistics is properly integrated into the concept-based requirement process, the Combat Development System, and the Marine Corps Master Plan. The MCCDC develops or identifies the concepts, doctrine, organizations, equipment requirements, training programs, facilities, and support that generate Marine Corps' warfighting capabilities. It also describes how these capabilities are employed. The MCCDC is also responsible for professional military education programs that teach Marines their warfighting profession and provide an intellectual environment for improving established methods and equipment for accomplishing missions. The MCCDC also collects, analyzes, and disseminates lessons learned during Marine Air-Ground Task Force (MAGTF) to ensure that appropriate follow-up actions are taken.

Marine Corps Materiel Command. The MARCORMATCOM is responsible for managing the materiel life cycle of Marine Corps ground weapons systems, equipment, munitions, and information systems. This SE exercises materiel support management through its two subordinate commands, Marine Corps logistical bases (MCLBs), and the Marine Corps Systems Command (MARCORSYSCOM).

Marine Corps Systems Command. As one of its functions, the MARCORSYSCOM manages Marine Corps ground ammunition acquisition programs and Marine Corps-owned and controlled ground ammunition stocks. The ground ammunition function is particularly significant in insuring Marine Air-Ground Task Force (MAGTF) sustainability during operations and crisis action response planning and execution.

Marine Corps Logistics (MCL) Command. The MCL Command provides worldwide, integrated logistic/supply chain and distribution management, depot-level maintenance management, and strategic prepositioning capabilities to support operating forces and other supported units to maximize their readiness and sustainability. The MLC is an employment option available to the Marine Corps component commander to execute operational logistics and is the primary option to provide operational-level support during a major theater war (MTW). The MLC is the Marine Corps' logistical organization that spans the gap between the tactical and strategic levels of logistics.

In theater, the MLC is task-organized around a brigade service support group (BSSG)/combat service support group (CSSG) or larger combat service support element (CSSE) to provide operational logistical support to theater Marine forces (MARFOR), including MAGTFs operating with the Navy component. The MLC normally falls under the US chain of command and provides US logistical support; however, as directed by the combatant commander, the MLC may provide common user logistics (CUL) to multinational and joint forces. When a CSSE is designated as the MLC, the MARFOR establishes the support relationship between the MLC and the MAGTF. Establishing an MLC creates an

operational/tactical logistical structure within the Marine Corps component in which one CSSE serving as a MLC is responsible for operational-level logistics, and the MAGTF CSSE is responsible for the MAGTF's CSS. The MLC is attached to the component command and has coordinating authority with supported MAGTFs. The MLC and force service support group (FSSG) commanders exercise mission command of their assigned organizations by structuring their forces, establishing command relationships, and assigning missions to meet changing requirements.

6-3. LEVELS OF LOGISTICS

Levels of war and logistics. The strategic, operational, and tactical levels of logistics function as a coordinated whole rather than as separate entities. Although the Marine Corps generally focuses on the tactical logistical level, it is imperative that all Marines understand the interaction of all three logistical levels. These levels interconnect like sections of a pipeline, tying together logistical support at the strategic, operational, and tactical levels. The Joint Staff, individual Services, and associated national agencies address strategic logistical issues. Services coordinate their required strategic and operational logistical interfaces. Combatant commanders and their logistical staffs—supporting and supported—manage both strategic and operational logistics that affect their missions. Service components and subordinate commanders, their logistical staffs, and logisticians, down to the individual, small-unit level, deal with operational and tactical logistical responsibilities.

Strategic logistics supports organizing, training, and equipping the forces that are needed to further the national interest. It links the national economic base (people, resources, and industry) to military operations. The combination of strategic resources (the national sustainment base) and distribution processes (our military deployment components) represent our total national capabilities. These capabilities include the Department of Defense (DOD), the military Services, other government agencies as necessary or appropriate, and the support of the private sector. Strategic logistical capabilities are generated based on guidance from the National Command Authorities and logistical requirements identified by the operating forces. Lead times to coordinate and plan strategic logistics vary, ranging from up to a decade or more for equipment development and fielding, to two years for fiscal and routine operational contingency planning, to mere days for positioning forces around the globe in crisis response. The combatant commander and his staff (principally the J-4, Logistics Directorate) plan and oversee logistics from a theater strategic perspective. They assign execution responsibilities to Service components unless a joint or multinational functional command is formed to perform theater strategic logistical functions. The Joint Staff and combatant commanders generate and move forces and materiel into theater and areas of operations when operational logistical concepts are employed. Headquarters, Marine Corps, and the Marine Corps supporting establishment, augmented by the Marine Corps Reserve, plan and conduct Marine Corps strategic logistical support (with the exception of aviation-peculiar support). Headquarters, Marine Corps uses information from and coordinates with Marine Corps operating forces and the Marine Corps Reserve, the Joint Staff, and the supported or supporting combatant commanders to establish and affect strategic logistics.

Operational logistics. The focus of operational logistics is to balance deploying MAGTF, employing them, and supporting requirements to maximize the overall force effectiveness. Marine Corps operational logistics focus on force closure, sustainment, reconstitution, and redeployment of Marine forces in theater, which includes—

- Providing operational-level command and control for effective planning and management of operational logistical efforts.
- Establishing intermediate and forward support bases.
- Employing geoprepositioned and maritime prepositioned assets.

- Supporting arrival and assembly of forces in theater, and their reception, staging, onward movement, and integration.
- Coordinating logistical support with joint, other-Service, and host nation agencies.
- Reconstituting and redeploying MAGTFs and maritime prepositioning forces (MPFs) for follow-on missions.

Tactical logistics includes organic unit capabilities and the sustainment activities necessary to support military operations. Its focus is to support the commander's intent and concept of operations while maximizing the commander's flexibility and freedom of action. Tactical logistics involves the coordinating functions required to sustain and move units, personnel, equipment, and supplies. These functions must deliver flexible and responsive sustainment to meet the needs of the forces engaged in operations. Therefore, tactical logistical support time is necessarily rapid and requires anticipatory planning to provide responsive support. Supply and maintenance activities generate materiel readiness; transportation resources move personnel, equipment, and supplies within the tactical area of operations; and general engineering support, health service support, and general services support contribute to accomplishing the mission. The MAGTF is specifically designed to possess the organic CSS organizations that it needs to accomplish assigned missions. Although no single element of the MAGTF has all of the operational and logistical capabilities needed to operate independently, each element has the capability for at least some basic self-support tasks. The combat service support element (CSSE) provides general ground logistical support to the command element (CE), ground combat element (GCE), and aviation combat element (ACE). The ACE possesses unique aviation logistical support capabilities essential for aircraft operations. Typically, the MAGTF deploys with accompanying supplies that enable it to conduct operations that range from 15 to 60 days (the period when resupply channels are being established and flow of supplies initiated).

6-4. FORCE PROJECTION LOGISTICS

Logistical sources. To respond rapidly to crises in different parts of the world, the Marine Corps and the Navy developed the maritime-positioning force (MPF) and aviation logistical support ship (T-AVB) programs. In concert with the North Atlantic Treaty Organization (NATO) and the Norwegians, the Marine Corps maintains the Norway Geoprepositioning Program as another logistical source.

Maritime Pre-Positioning Force. Fifteen Military Sealift Command prepositioning ships are especially configured to transport supplies for the US Marine Corps. Known as the Maritime Prepositioning Force, 13 ships were built or modified in the mid-1980s and are on location in the western Pacific Ocean, the Indian Ocean, and the Mediterranean Sea.

Maritime prepositioning ships (MPS). These ships contain nearly everything the Marines need for initial military operations—from tanks and ammunition to food and fuel to spare parts and engine oil. In 2000/2001, two MPF (E) vessels were added to the MPF.

The MPS are organized into three squadrons, each commanded by a Navy captain. MPS Squadron One, usually located in the Atlantic Ocean or Mediterranean Sea, has four ships; MPS Squadron Two, usually located at Diego Garcia, has five ships; and MPS Squadron Three, normally in the Guam/Saipan area, has four ships. In addition to Marine Corps designated ships, MPS squadron staffs also oversee all other prepositioning ships (Army and Air Force) in their geographic operating areas.

Each MPS squadron carries sufficient equipment and supplies to sustain 17,000 Marine Corps Air Ground Task Force personnel for up to 30 days. Each ship can discharge cargo either pier side or while anchored offshore using lighterage carried aboard. This capability gives the Marine Corps the ability to operate in both developed and underdeveloped areas of the world.

A Marine expeditionary brigade (MEB) will enter a theater of operations via air or sealift and join the equipment and supplies unloaded at a nearby port during arrival and assembly operations. An MPF consists of a MEB, ships of the maritime prepositioning ships squadron (MPSRON), and Navy support forces. An MPSRON can also support smaller MAGTFs through selective offloading of equipment and supplies or a Marine expeditionary force (MEF) by employing some or all of the 15 ships. Ships from one MPSRON are interchangeable with ships from any other. MPF is especially responsive to regional crises or natural disaster relief. Each squadron flagship and alternate flagship is configured to support a Marine expeditionary unit (MEU)-sized contingency, which allows for the download of a MEU suite of equipment and sustainment by one ship. MPF and amphibious operations are complementary capabilities; one is not a substitute for the other. MPF is not to be confused with joint logistics over-the-shore (JLOTS), strategic sealift, or a floating warehouse. Such inappropriate use of equipment and supplies degrades MPF capability and could jeopardize the combatant commander's ability to employ MAGTFs.

Aviation logistics support ship. There are two T-AVBs, one located on the West Coast and the other on the East Coast. The primary T-AVB mission is to provide dedicated sealift for movement of a Marine aviation logistics squadron (MALS) to support the rapid deployment of fixed and rotary-wing aircraft units. When T-AVBs are activated, they are under the operational control of MSC. T-AVBs are crewed under an operating contract by the Maritime Administration (MARAD). T-AVBs are activated to participate in annual exercises and deployments, as required. Specifically, the MALS supports a designated mix of aircraft included in a specific MAGTF ACE. The majority of facilities used by the MALS when ashore are packaged in 8'X8'X20'-foot containers designated as mobile maintenance facilities (MMFs) that are placed aboard the T-AVB. The MMFs containing operational work centers and ready access supply stores are installed on the main and second decks in tiers of one or two. Access ladders and scaffolding provide routine access to the MMFs by MALS personnel. Other MMFs containing spare parts are stowed below the second deck. The T-AVB administrative loadout is approximately 684 MMFs, whereas the working loadout is approximately 352.

Norway Geoprepositioning Program. Established in 1981 under a bilateral memorandum of understanding with the Norwegian Government, this program permits the pre-positioning and maintenance of MEB equipment and supplies in underground storage facilities in Norway. The equipment and supplies are categorized as contingency retention stock. Since 1995, the two countries have equally shared the cost of the program. The Norway Geoprepositioning Program provides the Norway air-landed Marine expeditionary brigade (NALMEB) a capability similar in scope to that of an MPSRON. The NALMEB, totaling approximately 13,000 personnel, is smaller than a maritime pre-positioning ship (MPS) MEB. Similarly, the NALMEB does not preposition armor assets due to Norway's non-provocation policy and the Conventional Forces in Europe Treaty. HQMC approved the use of equipment and supplies for exercises or operations outside of Norway but within the European Command (EUCOM) AOR. The NALMEB Out-of-Area Policy allows for this by requesting the use of these assets from HQMC via the appropriate chain of command/national command relationships. HQMC has designated the commander, Marine Forces, Europe (COMMARFOREUR) as its executive agent for these matters once HQMC approval has been granted. Requests for exception to this policy must be forwarded to HQMC for approval.

6-5. MARFOR LOGISTICS

Marine Corps Forces logistical sources. The MARFOR constitutes the forward presence, crisis response, and fighting power available to JFCs. The MAGTF, MLC, and the force projection logistical sources provide logistics for MARFOR.

Operational-level logistics. The Marine Corps executes its supply functions via wholesale and retail material management entities. At the wholesale level, MCLBs perform traditional DOD inventory control point functions for assigned items, as well as serving as the single Service-level manager for Marine Corps ground weapons systems. At the retail level, MEFs operate intermediate stock points and process

requisitions generated by the consumer-level maintenance and supply systems. The supply battalions of the force service support groups (FSSGs) operate these stock points and provide the primary source of supply for MEFs. The Navy provides support for Navy-furnished material, ammunition, and equipment through systems commands.

Marine Corps logistical bases (MCLBs). The MCLB, Albany, Georgia, MCLB Barstow, California, and Blount Island Command (BIC), Jacksonville, Florida, provide general service-level supply, storage, and maintenance support to the Marine Corps. Repair centers perform depot-level overflow field/ intermediate-level maintenance on ground equipment. Storage facilities house consumable and repairable materiel, including some pre-positioned war reserve materiel stock (PWRMS). MCLB Albany is the item manager for Marine Corps-peculiar materiel. BIC is responsible for inventory management and equipment maintenance, modification, and replacement support for the MPF and the Norway Geoprepositioning Program. MCLBs/BIC may deploy a technical assistance advisory team (TAAT), which includes civilian contractors, to a theater of war to provide technical assistance for MPF regeneration operations.

Marine Corps bases and stations. Marine Corps bases, stations, and reserve support centers furnish the garrison administration, housing, storage, maintenance, training, and deployment support facilities. The operating forces and the Marine Corps Reserve use bases, stations, and centers to maintain their combat readiness and support their deployment on routine and contingency response operations. Bases, stations, and centers provide critical logistics to deploying forces during predeployment preparations. Many of the bases and stations of the SE report to either the commander, Marine Forces, Atlantic (COMMARFORLANT) or the commander, Marine Forces, Pacific (COMMARFORPAC). Some bases and stations are designated stations of initial assignment for Marine Corps Reserve mobilization and are responsible for assisting the operating forces with the throughput of Marine Corps Reserve personnel and materiel in support of Marine Air-Ground Task Force (MAGTF) deployments.

Marine air-ground task force. The MAGTF is the principal Marine Corps organization for missions across the range of military operations. Task-organized under a single commander capable of responding rapidly anywhere in the world, MAGTF forces are functionally grouped into four elements: a command element (CE), an aviation combat element (ACE), a ground combat element, and a CSSE. The elements are categories of forces, not formal commands. The basic MAGTF structure does not vary, though the number, size, and type units comprising each element will be mission dependent. The flexibility of the organizational structure allows for one or more subordinate MAGTFs, other service, and/or foreign military forces to be assigned or attached. The MAGTF is specifically designed to meet mission-oriented requirements of amphibious warfare and expeditionary operations. A MAGTF deploys with a package of accompanying supplies that sustain initial operations. Though not part of the tactical command of the MAGTF, the SE provides the essential platform from which the MAGTF forms, trains, deploys, and receives sustainment.

Marine expeditionary force. The MEF is the largest MAGTF and the principal Marine Corps warfighting organization, particularly for larger crises or contingencies. It is task-organized around a permanent CE and normally contains one or more Marine divisions, Marine aircraft wings (MAWs), and Marine FSSGs. The MEF is capable of missions across the range of military operations, including amphibious assault and sustained operations ashore in any environment. It can operate from a sea base, a land base, or both. It may also contain other service or foreign military forces assigned or attached to the MAGTF. The FSSG provides tactical-level ground CSS to MEF elements. The Marine wing support group (MWSG) provides aviation ground support, including airfield operations support and selected airfield-critical CSS functions to the MAW and to Marine aircraft groups (MAGs) through the Marine wing support squadron (MWSS). Marine aviation logistics squadrons (MALSs) provide direct intermediate-level aviation supply, maintenance, avionics, and ordnance support to a Marine aircraft group (MAG). The MEF deploys with up to 60 days of accompanying supplies. Under certain conditions, a MEF operating in a joint force may receive operational-level logistics from an FSSG designated as an MLC. Smaller MAGTFs are task-organized from the assets of the MEF.

Marine expeditionary brigade. A MEB is a MAGTF that is constructed around a reinforced infantry regiment, a composite MAG, and a BSSG. Commanded by a general officer, the MEB is task-organized to meet the requirements of a specific situation. It can function as part of a JTF, as the lead echelon of the MEF, or alone. Varying in size and composition, the MEB is larger than a MEU but smaller than a MEF. The MEB is capable of conducting missions across the full range of military operations. It may contain other Service or foreign military forces assigned or attached. As an expeditionary force, the MEB is capable of rapid deployment and employment with maritime or geographic pre-positioning equipment and supplies via amphibious shipping and/or strategic airlift. A MEB normally deploys with up to 30 days of accompanying supplies.

Marine expeditionary unit. A MEU is a MAGTF that is constructed around a reinforced infantry battalion, a reinforced helicopter squadron, and a MEU service support group (MSSG). It normally fulfills Marine Corps forward sea-based deployment requirements. The MEU provides an immediate reaction capability for crisis response and is capable of limited combat operations. It may contain other service or foreign military forces assigned or attached. The MSSG is sourced from an FSSG. The standard accompanying sustainment for a MEU is up to 15 days of accompanying supplies except for aviation. Aviation support aboard ships is designated for 90 days of combat flying hours, except for class V (A), which is constrained to 15 days of ammunition due to limits of amphibious explosive storage.

Special purpose MAGTF. A special purpose Marine air-ground task force (SPMAGTF) is a MAGTF organized, trained, and equipped with narrowly-focused capabilities. It is designed to accomplish a specific mission, often of limited scope and duration. A SPMAGTF may be any size, but normally it is a relatively small force—the size of a MEU or smaller. It may contain other service or foreign military forces assigned or attached to the MAGTF. Normally, a CSS detachment is task-organized from the FSSG to support the SPMAGTF. When attached to a joint force, the SPMAGTF will usually require operational logistical support.

Air contingency MAGTF (ACM). The ACM is an on-call, combat-ready MAGTF that deploys by air. ACMs vary in size based on mission requirements and the availability of airlift. Because they deploy by air, ACMs generally have a limited organic logistical capability, require an arrival airfield, and need operational logistical support. ACMs usually are activated to respond to developing crises and may deploy independently or in conjunction with other expeditionary forces.

MEF	MEF FORWARD	MEU
FSSG	BSSG	Service Support Group (SSG)
HQ and Service Battalion	HQ Company	HQ Platoon
Motor Transport Battalion	Motor Transport Company	Motor Transport Platoon
Landing Support Battalion	Landing Support Company	Landing Support Platoon
Supply Battalion	Supply Company	Supply Platoon
Maintenance Battalion	Maintenance Company	Maintenance Platoon
Engineer Support Battalion	Engineer Support Company	Engineer Support Platoon
Medical Battalion	Medical Company	Combat Health Support Unit
Dental Battalion		

NOTE: BSSGs and MEU SSGs are task organized by permanent FSSG organizations.

PART III: US ARMY SPECIAL OPERATIONS FORCES

6-6. LOGISTIC OPERATIONS

This chapter outlines logistical organization to support Army special operations forces (SOF). The United States Army Special Operations Command's (USASOC) logistic transformation resulted in the deactivating the 528th Special Operations Support Battalion; creating five SF group support battalions (GSBs) and associated group service support companies (GSSCs); creating a ranger support operations detachment (RSOD) and ranger (battalion) support companies; and reflagging the Special Operations Support Command (Airborne) to a sustainment brigade (special operations) (airborne) (SB[SO][A]) headquarters (HQ).

Only those USASOC units designed to mission command tactical special operations, special forces groups (SFG), and ranger regiments are resourced with organic logistic and sustainment support capabilities. The 160th Special Operations Aviation Regiment (Airborne) (SOAR[A]), the 95th Civil Affairs (CA) Brigade (Airborne), and psychological operations (PSYOP) brigade (airborne) possess unit organizational logistic personnel because they are designed to deploy and operate while task-organized under an Army special operations forces (ARSOF)-led combined joint special operations task force (CJSOTF), with an SFG, or with the ranger regiment from which they would receive direct support and sustainment. USASOC also created an SB(SO)(A) HQ with a global, operational-level focus. Its mission is to set the operational-level logistic conditions to enable expeditionary ARSOF missions within Army general purpose force (GPF) theater logistic infrastructures.

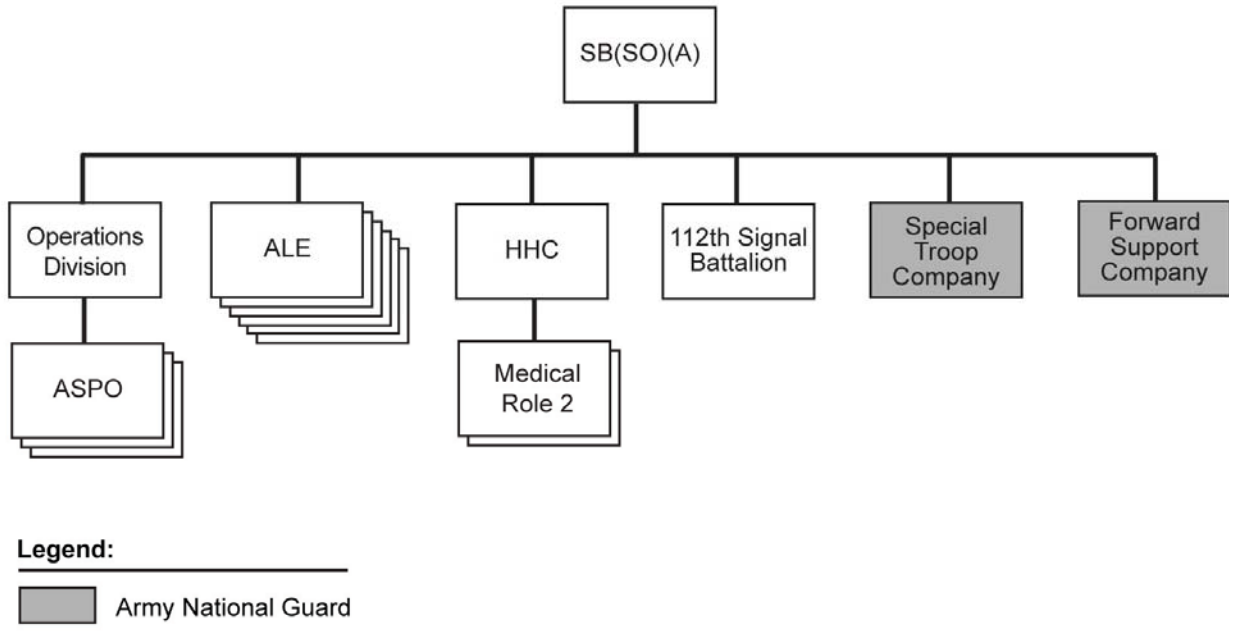

Figure 6-28. SB(SO)(A) Organization.

The SB(SO)(A) is a modified table of organization and equipment (MTOE)-deployable logistics HQ assigned to USASOC. The mission of the SB(SO)(A) is to set the operational-level logistics conditions that are needed to enable ARSOF missions. Using forward-stationed Army special operations force logistic elements (ALE) and modular and deployable Army special operations forces support operations (ASPO) cells, the SB(SO)(A) ensures logistical requirements generated from operational plans developed at the theater special operations command (TSOC) are integrated and synchronized with the Army Service component command's (ASCC) support plan.

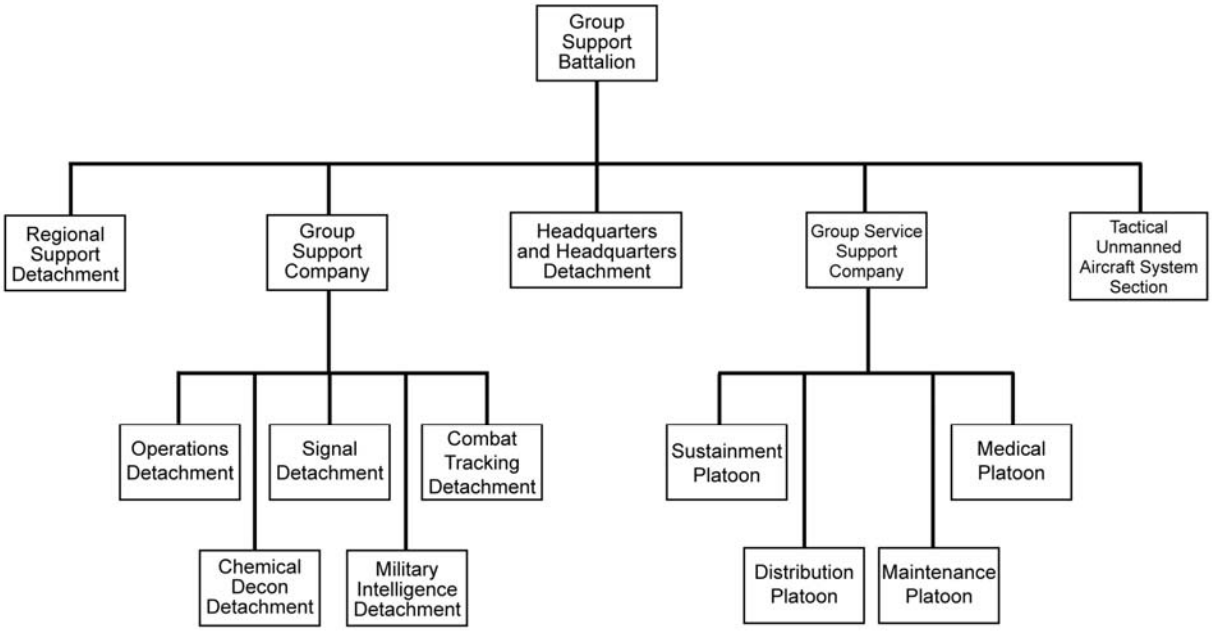

Figure 6-29. SF Group Support Battalion.

The GSB consists of a headquarters and headquarters detachment (HHD), a group support company (GSC), a group service support company (GSSC), a regional support detachment (RSD), and a tactical unmanned aircraft system (TUAS) section (Figure 4-1). The GSC has organic operations, chemical decontamination, signal, military intelligence, and combat tracking detachments. The GSSC is a multifunctional logistic organization consisting of a sustainment platoon, a distribution platoon, a field maintenance platoon, and a medical platoon. The group support battalion (GSB) controls consolidated logistical facilities and activities when the SOTFs and Army forward operations bases (FOB) consolidate sustainment operations. It also augments the resources of the battalion support companies (BSC) when subordinate battalions establish Army FOBs. With augmentation, a special operations task force (SOTF) routinely deploys its three advanced operational bases (AOBs) to locations separate from the SOTF base.

6-7. LIMITATIONS OF THE GROUP SUPPORT BATTALION

The GSB has significant limitations in its mission support capabilities, relying on mission-specific augmentation. Assessing the mission and task organization of the GSB is critical in every mission analysis. Factors and limitations to be considered are as follows:

- Movement limited by dense, rugged, or close terrain.
- The GSB has no organic mortuary affairs (MA) capability.
- No organic SFG bath and laundry; support is provided by the SB(SO)(A) or the theater sustainment command (TSC).
- Limited financial management.
- Limited Class IX and VIII storage capability.
- Limited capability to reconfigure CL V strategic/operational mission-configured loads.
- No firefighting capability.
- No organic EOD in the SFG; it requires ASCC augmentation.
- No HR capability than organic S-1; it relies on the ASCC to provide additional HR support.
- Limited legal capability in a SFG; it requires JAG augmentation.
- Limited maintenance backup support to the battalion units.
- No organic air MEDEVAC support.

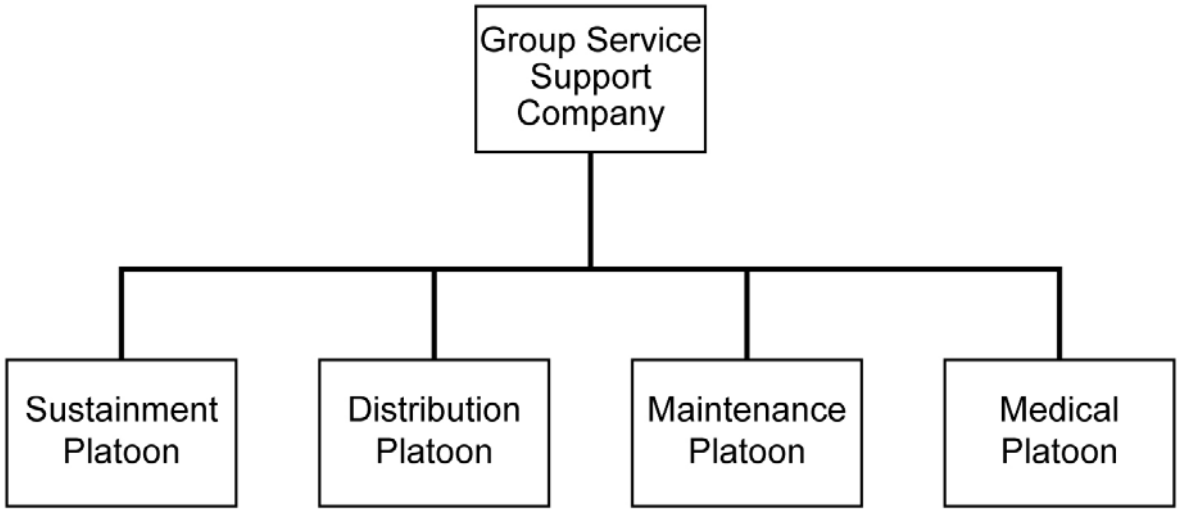

Figure 6-30. SF Group Service Support Company.

6-8. GROUP SERVICE SUPPORT COMPANY

The group service support company (GSSC) is a multifunctional logistic company providing maintenance, supply of Classes I through IX, water production/distribution, bare-base support, aerial delivery, ammunition holding, force health protection (FHP) support, and transportation. The GSSC is independently deployable and is capable of providing common-user logistic (CUL) support to a force package of approximately 2,200 personnel when combined with the logistic support capabilities within SF battalions. For support larger SO force packages in multiple locations, the battalion will depend upon augmentation from the ASCC and the TSC. Figure 8-3 shows the GSSC organization.

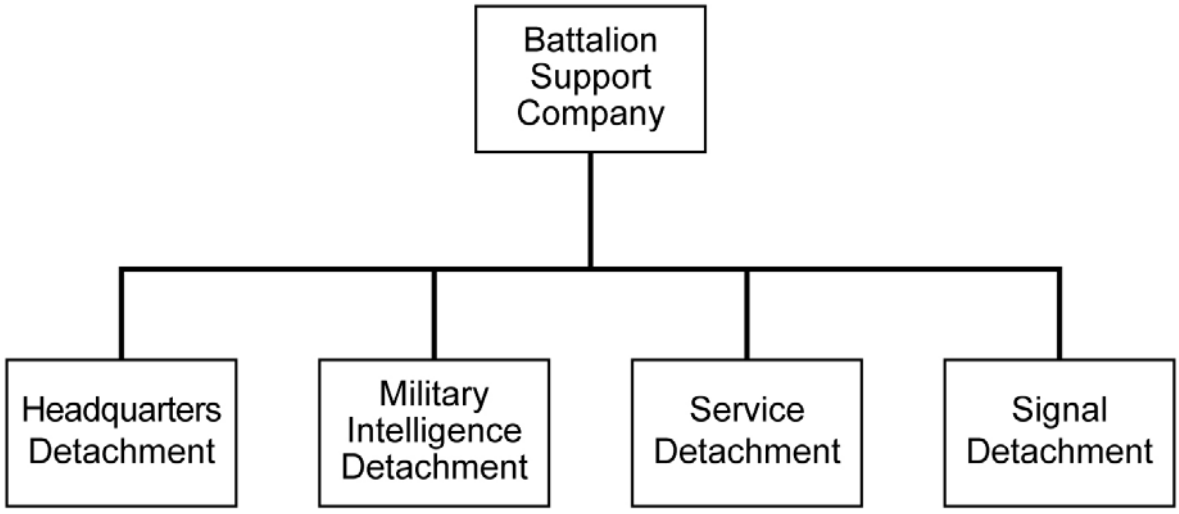

Figure 6-31. SF Battalion Support Company.

6-9. BATTALION SUPPORT COMPANY

The BSC provides administrative and logistic support to the SF battalion. The BSC commander commands all personnel and elements assigned or attached to the company. The BSC commander is the senior logistic commander and executor within the battalion. The BSC commander provides information, input, or feedback to the battalion S-1/S-4 for use in planning and coordination and also for providing the battalion commander an LCOP. When the battalion establishes a SOTF, he may serve as the SPTCEN director. The BSC commander is responsible for executing the logistics plan in accordance with (IAW) the battalion commander's guidance as developed by the battalion S-1/S-4. The BSC commander responds directly to the battalion XO, who serves as the battalion logistics integrator and assists the battalion S-1/S-4 in logistic synchronization and troubleshooting. He directly interfaces with the GSB and TSC logistic support elements. ICW the S-3 and HQ commandant, the BSC commander prepares the base defense plan and supervises the activities of the base defense operations center (BDOC). When all special forces operations detachment bravo (SFODB) are committed to other missions, the support center (SPTCEN) commander commands all the uncommitted special forces operations detachments alpha (SFODA) and attached special operations team(s) alpha at the SOTF and supervises their pre-mission training activities in coordination with (ICW) the operations center (OPCEN). The BSC is assigned or organic to the SF battalion and will coordinate with the GSB in order to provide logistics support to the battalion. The SFG commander may give technical control of the BSC service detachment to the GSB commander in order to implement his SOTF logistical support plan.

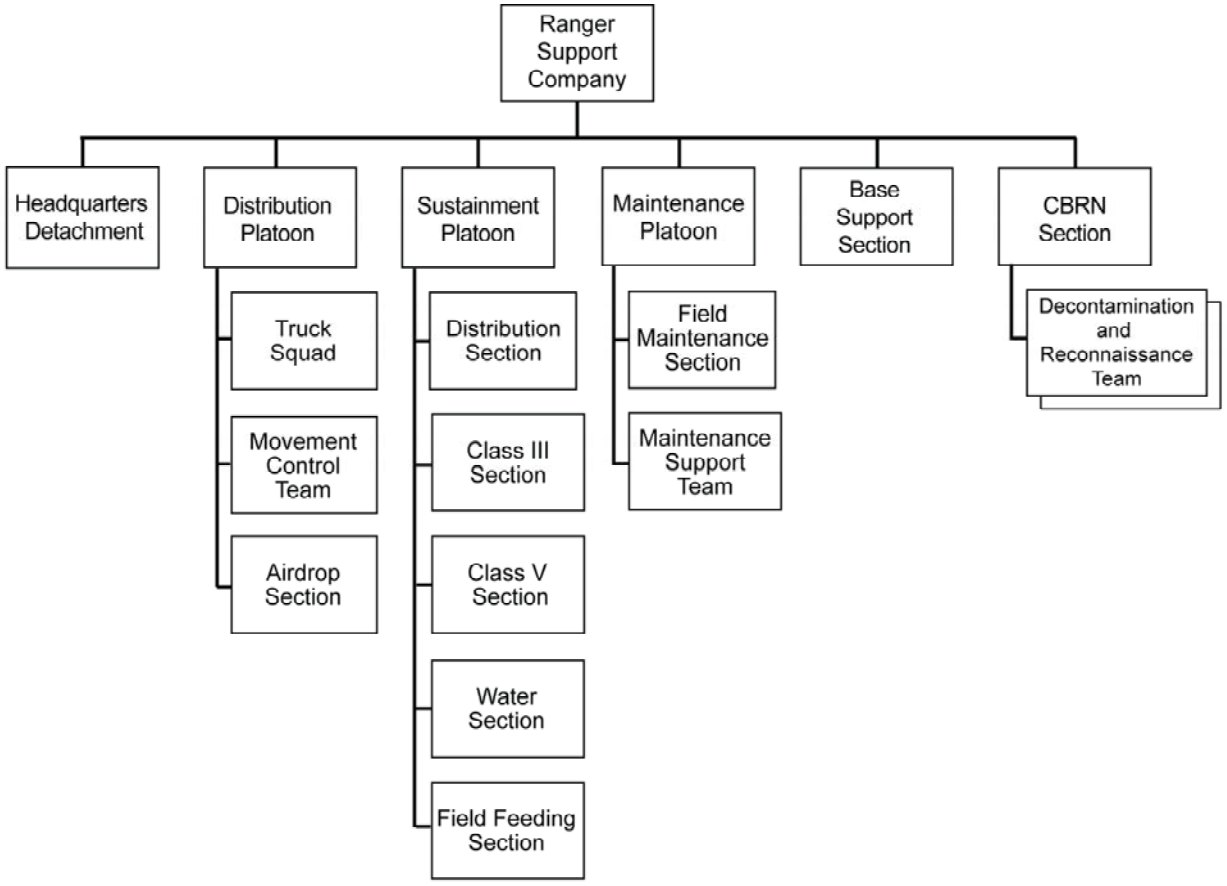

Figure 6-32. Ranger Support Company.

6-10. RANGER SUPPORT COMPANY

The ranger support company (RSC) commander is the senior logistics provider at battalion level. He assists the battalion S-1/S-4 with the logistics planning and provides information and feedback and formulates and tracks the battalion LCOP. The RSC is the primary CUL provider for all forces assigned or attached to the battalion. The RSC coordinates logistics requirements with the RSOD and JTF HQ. It can accept CUL augmentation and employ assets from other Services and nations and integrate their capabilities into a cohesive plan to support the operational concept. The RSC is capable, with augmentation, of supporting all battalion logistical requirements. When component forces are assigned to an SOTF, they will deploy with their organic support packages for Service-specific requirements and logistics support. The RSC commander executes the logistics plan IAW the battalion commander's guidance as developed by the battalion S-1/S-4. The RSC commander generally responds directly to the battalion XO, as the battalion logistics integrator and assists the battalion S-1 and S-4 in logistics synchronization and troubleshooting. His duties may require direct interface with the RSOD, joint and multinational forces, other SOFs, and the TSC.

PART IV: US AIR FORCE

6-11. LOGISTICS

The US Air Force's logistical system is designed to enable it to deploy to any part of the world on short notice and to sustain operations indefinitely. This system is designed to operate under the same policies and procedures in peacetime as in war. The supply concept relies on channeling requisitions directly between the user and the supply source without any intermediate review.

6-12. ORGANIZATION

Air logistical centers. There are five depots, or air logistical centers, all located in CONUS, to service all airbases, employing a single service-wide set of standard procedures. The maintenance concept seeks to perform all equipment maintenance operations at the lowest organizational level possible with the proper skills, equipment, and facilities. Maintenance, technical guidance, and depot maintenance support are directly linked between the base and each air logistics center. A standard organization performs base maintenance functions at all bases and operates using the centralized maintenance concept.

Air Force Materiel Command (AFMC) The AFMC manages the development, delivery, and sustainment service-wide. The AFMC supports other US military forces and allies, and handles major aerospace responsibilities for the Department of Defense including research, developing, testing, and evaluating satellites, boosters, space probes, and associated systems needed to support specific National Aeronautics and Space Administration projects. AFMC researches, develops tests, acquires, delivers, and logistically supports every Air Force weapon system as well as other military non-weapon systems. AFMC equips the Air Force with weapons systems through a series of cradle-to-grave facilities. Weapon systems, are developed and acquired through four product centers, using science and technology from four major laboratories. The systems are tested in AFMC's three test centers, then are serviced and receive major repairs over their lifetime at the command's five air logistical centers.

Air Force wing. Each wing prepare for potential contingency deployments during peacetime planning including site survey teams visits to locations to ascertain what support types and levels will be available and to establish contracting POCs. Wing personnel use this data to prepare detailed sustainment planning, focusing on which organic assets must deploy versus the level of sustainment the host nation can provide. Where the wing may deploy to an unknown location, planning will focus on using organic assets.

Shortfalls are then identified to higher HQ to allow planning for whatever augmentation forces may be necessary. All or portions of these units will comprise the total wing deployment package.

Deployment sequence and timing use the JOPES process to determine the time-phased force deployment list data (TPFDLTPFDD) to support the OPLAN. Flying squadrons may deploy with a small sustainment package, followed later by the remainder of the wing sustainment elements. Typically such a package includes the personnel and equipment to conduct combat operations for 30 days. For this reason, these flying squadrons receive dedicated airlift and either accompany the deploying unit (e.g., tankers dragging deploying fighters also carry maintainers, spare parts, and other equipment) or slightly precede the arriving aircraft at the deployed location. Thereafter, the sustainment structure builds with the arrival of additional units in theater.

Major wing subordinate groups. Each Air Force wing, with minor exceptions, is generally composed of four major subordinate groups.

- O*perations group.* The operations group is composed of flying squadrons (operations and maintenance) and an operational support squadron that includes operations planning, scheduling, mobility, weather, and intelligence personnel.

- *Logistical group.* The logistical group is comprised of logistics squadrons for supply support and planning, maintenance, contracting, supply, and transportation.

- *Medical group.* The medical group meets deployed personnel's medical needs and provides hospital, aerospace medicine, and veterinary services, as required.

- *Support group.* The support group is the wing's catchall organization tasked with personnel, education, records, information management, reprographics, family support, resource management, mortuary affairs, food services, linen exchange, and recreation functions. In addition, a security police unit provides local wing security.

Rapid Engineer Deployable, Heavy Operations Repair Squadron—Engineer (RED HORSE). RED HORSE is a heavy construction and repair capability to perform construction and installation engineering for weapons systems and critical support systems required to initiate and sustain operations, especially in austere, bare-base environments. Capabilities include engineering design, aircraft arresting systems, airfield lighting, water well drilling, concrete production, quarry operations, asphalt plant operations, demolition, material testing, bomb damage repair, and automatic building machine operations. This unit is manned, equipped, and trained to operate in remote, hostile locations as an independent, self-sustaining unit. It supports the full spectrum of contingencies from general war and regional/low-intensity conflicts to natural disasters and other contingencies. The unit is capable of deploying (ready to load) in from 12 hours to 6 days depending on the level required. In peacetime, squadrons can be based either in CONUS or overseas.

Base Emergency Engineering Force (Prime BEEF). Units provide light engineering support for runway repair and miscellaneous construction. Readiness in base service (Prime RIBS) units provide food service, billeting, laundry, bath, and mortuary services. Both units use two types of prepackaged bare-base systems—Harvest Eagle and Harvest Falcon. The Harvest Eagle package contains tents, mobile kitchens, sleeping quarters, and other elements that can become operational very quickly. Harvest Falcon components, which fulfill the same function as Harvest Eagle, are semi-permanent, mobile modular structures. These are seldom deployed due to the extensive lift required. Prime BEEF teams can deploy worldwide on a 28-hour notice for Air National Guard, and a 22-hour notice for active duty, including a 4-hour deployment period which begins upon mission orders receipt notification.

PART V: US NAVY

6-13. LOGISTICS

The US Navy's logistical system is based on the requirement that the fleet be ready, mobile, and enduring. In general, forces based in CONUS receive support from continental sources, whereas the combat logistical forces that accompany the fleets primarily support those deployed overseas augmented by overseas base support, as necessary. During overseas contingency operations, a naval logistics supply force may be created to coordinate this support, as in the Persian Gulf War.

6-14. ORGANIZATION AND RESPONSIBILITIES

The Secretary of the Navy is responsible for the Navy supply structure's policies, control, guidance, and development. The Assistant Secretary of the Navy (Manpower, Reserve Affairs, and Logistics) is the Secretary's principal civilian assistant for logistics. He supervises all matters related to materiel production, procurement, supply, distribution, and management. The Chief of Naval Operations (CNO) is the Secretary's military adviser for logistics. He sets the broad levels of attainment, determines the degree of responsiveness of supply support required, and prescribes the general doctrine and positioning of materiel for supply support operations. The Deputy Chief of Naval Operations (Logistics) (N4) is the principal adviser to the CNO on conducting logistical affairs. He plans and provides the operating forces' logistical support needs.

6-15. SUPPLY

Control of naval materiel requirements. Navy inventory managers obtain the required materiel within the Navy's budget. DLA, GSA, and other military services centrally procure and manage certain categories of materiel providing more than 75 percent of Navy operating needs. DLA and GSA are referred to as commodity-integrated materiel managers (CIMMs). Other military services managing Navy interest items are referred to as weapons-integrated materiel managers (WIMMs). The total Navy organization for supply is as shown in figure F-1.

Organization for supply. There are two distinct groups of Navy inventory managers; the naval systems commands and the Navy ICPs subordinate to the Naval Supply Systems Command. Each item of supply, equipment, or materiel has a single. The Navy is increasingly using identical and similar items of equipment and repair parts in Navy and other service programs. Inventory management of items peculiar to such equipment is assigned to Naval Supply Systems Command ICPs. The concepts of program support and supply support provide the basis for a common understanding of responsibilities among the naval systems commands and the Navy ICPs when repair parts support equipment under more than one inventory manager's materiel management.

Under this procedure, a naval systems command looks to a single Naval Supply Systems Command ICP for equipment or weapon system program support or ancillary repair parts supply support, or both. The Naval Supply Systems Command ICP ensures the appropriate inventory manager services each repair equipment or weapon system part required. The supply support inventory managers stocks the items in the distribution system or ensure the item is available from commercial sources.

The Naval Supply Systems Command ICPs are the supply system's nerve centers. The ICP determines what stocks to buy, how much to buy, and what distribution to make materiel most accessible across the Navy. This function could not be executed without knowing the location, depth, and use of all materiel throughout the supply system pipeline. Stockage activities make report transactions against the stock balances to the appropriate ICP. Using this information, the ICP decides when to procure, redistribute, and dispose of excesses, as necessary.

Navy fleet supply support has three echelons—an organic level of supply, and two echelons of resupply:

Organic level supply provides the materiel specified in a ship's allowance list and carried onboard the ship itself. The list is tailored to the individual ship based on equipment configuration and crew. Maintaining the allowance list maximizes endurance and provides balanced support for a specified period.

The combat logistics force (CLF) is the first echelon of resupply backing up the ship allowance. It includes tenders, repair ships, and fleet issue ships. Logistical ships carry frequently requested repair parts tailored to the combat forces they support. They rendezvous with task forces in the forward area and keep the fleet at sea and on station for extended periods of time. The Combat Logistics Force fleet of about 40 ships resupplies combatant ships at sea with several commodities such as: ship and aviation fuel, ordnance, and food. This enables ships to operate at sea almost indefinitely, without ever needing to go into ports to replenish. This combination of supply levels satisfies the CNO's policy that the deployed fleet will be self sufficient during wartime operations for specified periods without resupply from CONUS.

Connected replenishment (CONREP) is a way ships can replenish other ships at sea using cables or hoses for fuels. Depending on the material to be transferred, the ships are connected together with wires that run through UNREP rigs where fuel hoses or trolley devices are passed.

Vertical replenishment (VERTREP) is another way for ships to replenish ships at sea with needed supplies. Often replenishment ships will use this and CONREP at the same time to speed up the process. This method utilizes helicopters to transfer prepositioned palletized supplies from the replenishment ship's flight deck to the receiving ship's flight deck. The helicopter then hoists up the pallet (that has been placed in a cargo net), and flies it over to the receiving ship where it is lowered onto their flight deck.

Materiel located in CONUS stock points is the second echelon of resupply that serves as the materiel reservoir and acts as a pipeline between industry and the supply systems and the fleet. This materiel is issued to the CLF and directly to the operating forces. In addition to fleet support, these centers provide support to shore establishment activities: air stations, ordnance stations, shipyards, training stations, and smaller shore activities. The scope of the supply department at shore activities varies, depending on the activity size and mission. It can range from a small supply support detachment to a large supply department at a shipyard, naval station, or air station.

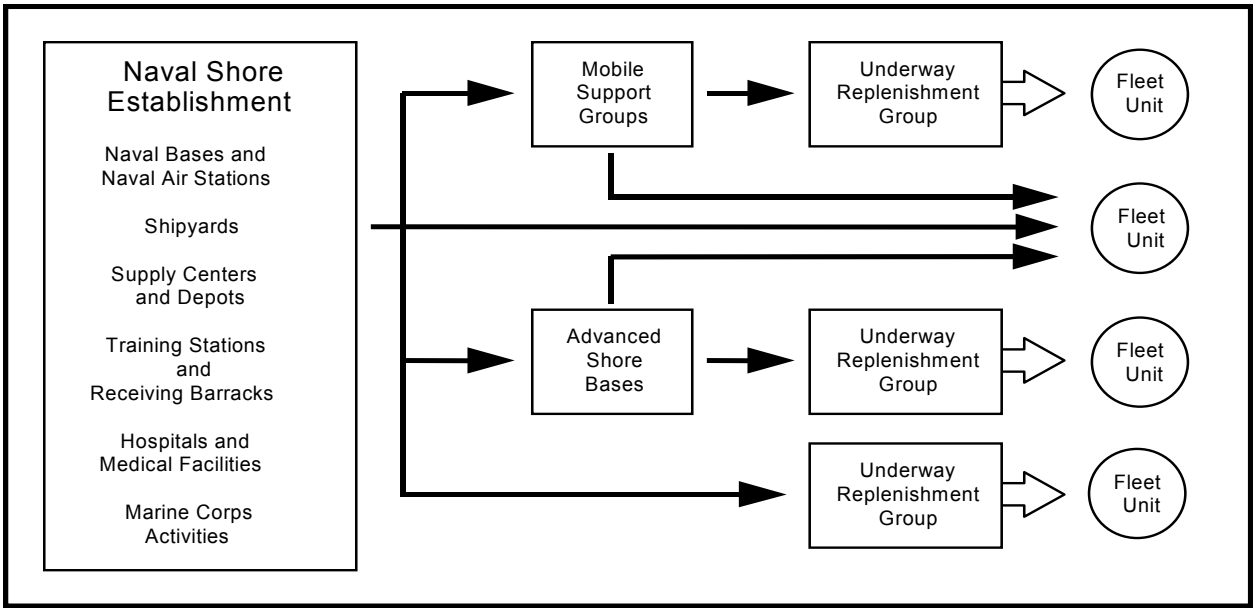

Figure 6-33. Navy Logistics.

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APPENDIX A

GLOSSARY

AA	assembly area
AASLT	air assault
ABCT	armor brigade combat team
ADA	air defense artillery
AFSB	Army field support brigade
AHB	attack helicopter battalion
AO	area of operations
ASL	authorized stockage list
ASMC	area support medical company
ASP	ammunition supply point
ATHP	ammunition transfer handling point
AXP	ambulance exchange point
BAS	battalion aid station
BCT	brigade combat team
BDAR	battle damage assessment and repair
BSA	brigade support area
BSB	brigade support battalion
BTB	brigade troops battalion
CA	civil affairs
CCDR	combatant commander
CCL	combat-configured load
CMO	civil-military operations
COA	course of action
CCBN	contingency contracting battalion
CSA	corps storage area, corps staging area
CSH	combat support hospital
CSR	controlled supply rate
CSSB	combat sustainment support battalion
DNBI	disease and non-battle injuries
DOS	days of supply
DPICM	dual-purpose improved conventional munitions
DS	direct support
DSA	division support area
DZ	drop zone
EAC	echelons above corps
EAD	echelons above division
EOD	explosive ordnance disposal
EPW	enemy prisoner of war
ESC	expeditionary sustainment command
FARE	forward area refueling equipment
FARP	forward arming and refueling point
FAWPSS	forward area water point supply system
FSC	forward support company, field supply company

FSMC	forward support medical company
FSSP	fuel system supply point
FST	forward surgical team
G-1	personnel
G-2	intelligence
G-3	operations and training
G-4	logistics
G-5	civil-military operations
G-6	signal operations
Gal/Man/Day	gallons per man per day
GPH	gallons per hour
GPM	gallons per minute
GS	general support
HCP	health and comfort pack
HEMTT	heavy expanded mobility tactical truck
HET	heavy-equipment transporter
HIPPO	load handling system compatible water tank rack
HSS	health services support
IFV	infantry fighting vehicle
IPB	intelligence preparation of the battlefield
kg, KG	kilogram
KIA	killed in action
km, KM	kilometer
lb, lbs	pound(s)
LMTV	light medium tactical vehicle
LOC	lines of communication
LOGPAC	logistics package
LOTS	logistics-over-the-shore
LSA	logistics support area
LWP	lightweight water purifier
MA	mortuary affairs
MCL	mission configured load
MCP	maintenance collection point
MEF	Marine expeditionary force
METT-TC	mission, enemy, terrain and weather, troops and support available-time available and civil considerations
MEU	Marine expeditionary unit
MHE	material handling equipment
MILVAN	military-owned demountable container
MOADS	maneuver-oriented ammunition distribution system
MP	military police
MRE	meals, ready to eat
MSR	main supply route
MST	maintenance support team
MTF	medical treatment facility
MTV	medium tactical vehicle
MWR	Morale, Welfare, and Recreation

NEA	Northeast Asia
NGO	nongovernmental organization
O/H	on hand
OPLAN	operations plan
OPORD	operations order
OPTEMPO	operating tempo, operational tempo
PDY	present for duty
PERSCOM	personnel command
PLS	palletized loading system
POL	petroleum, oils, and lubricants
PPD	pounds/person/day
PVO	private volunteer organizations
QA	quality assurance
QC	quality control
QM	quartermaster
RAP	rocket-assisted projectile
ROM	refuel on the move
RORO	roll on/roll off
ROWPU	reverse osmosis water purification unit
RP	release point
RSR	required supply rate
RTCC	rough-terrain container crane
RTCH	rough terrain container handler
RTD	returned to duty
RTFL	rough-terrain forklift
SLCR	shower, laundry, and clothing repair
SMFT	semi trailer-mounted fabric tank
SOP	standing operating procedure
SP	self-propelled; start point
SPO	support operations officer
SRO	sustainment replenishment operations
ST	short tons
SUST BDE	sustainment brigade
TA	theater Army
TAA	tactical assembly area
TD	theater distribution
TMT	transportation motor transport
TO	theater opening
TSA	theater storage area, theater staging area
TSC	theater sustainment command
TSOP	tactical standing operating procedures
TWPS	tactical water purification system
UBL	unit basic load
UGR	unitized group rations
UMCP	unit maintenance collection point
UO	urban operations

WfF	warfighting function
WIA	wounded in action

APPENDIX B

BRIGADE COMBAT TEAM (BCT) CONCEPT OF SUSTAINMENT

B-1. Operations Order.[14]

4. (U) **Sustainment.** Describe the concept of sustainment, including priorities of sustainment by unit or area. Include instructions for administrative movements, deployments, and transportation—or references to applicable appendixes—if appropriate. Use the following subparagraphs to provide the broad concept of support for logistics, personnel, and Army health system support. Provide detailed instructions for each sustainment sub-function in the appendixes to Annex F (Sustainment) listed in Table E-2.

a. (U) **Logistics.** Refer to Annex F (Sustainment), as required.

b. (U) **Personnel.** Refer to Annex F (Sustainment), as required.

c. (U) **Army Health System Support.** Refer to Annex F (Sustainment), as required.

B-2. Sustainment Planning.[15]

9-49. To provide effective support, sustainment planners and operators must understand the mission statement, intent, and concept of the operation. These will lead to developing a concept of support that the BCT operation order (OPORD) provides. The BCT S-4 is responsible for producing the sustainment paragraph and annexes of the OPORD, which should include the following:

- Commander's priorities.
- Class (CL) III/ V resupply during the mission, if necessary.
- Movement criteria.
- Type and quantities of support required.
- Priority of support, by type and unit.
- Sustainment overlay.
- Supply routes.
- Logistic release points.
- Casualty evacuation points.
- Maintenance collection points.
- Operational contract support.

B-3. Concept of Sustainment

4. (U) Sustainment. On order, 202nd BSB establishes BSA DEUCE vicinity NU3010 to provide responsive sustainment to the 2nd ABCT. The 52nd Sust BDE's 141st CSSB is in direct support of the division and establishes LSA LAMP vicinity NU0917. The initial division priority of sustainment is: 52nd Combat Aviation Brigade; 52nd Fires Brigade; 2nd ABCT; 3rd ABCT; and 1st ABCT, in order. Priority of sustainment for 2nd ABCT is 4-5 IN; 3-32 AR; and 2-32 AR, in order. Priority for supply is class III(B), class V, and Class VIII. Units must evacuate equipment non- repairable at the Field Maintenance level to the BSB MCP at BSA DEUCE. Maintenance evacuation priorities: M1; recovery vehicles; M2/3s, M109s, and M978 fuelers in order. Forward movement priorities: maneuver battalions,

[14] US Department of the Army, ATTP 5-0.1, *Commander and Staff Officer Guide* (Washington, DC: HQDA, 14 September 2011). Chapter 12, paragraph 4, "Operations Order."
[15] US Department of the Army, FM 3-90.6, *Brigade Combat Team* (Washington, DC: HQDA, 14 September 2010). Chapter 9, Section II, "Sustainment Planning."

artillery then resupply vehicles. The rearward movement priority: casualties; refugees, and maintenance evacuation. MSR CARDINAL designated division chemical contamination route and remains under division control throughout operation. The BSB commander may authorize controlled exchange; cannibalization is not authorized. The 52nd Sust BDE establishes a MACP in BSA DEUCE NLT H+12. The brigade EPW collection point is BSA DEUCE.

a. (U) Logistics. The 202nd BSB provides unit distribution via the FSC. The 141st CSSB will provide unit distribution to the BSA and throughput to units as coordinated by BSB operations. MSR CARDINAL is a division controlled route, and SR GREEN and SR BLUE are brigade controlled routes. The stockage objective for the onset of operations is 100% UBL. The following CSR in effect throughout operation: TOW-- 2 rds/M2/3; APFSDS-- 10 rds/M1A1. No Class VII replacement available until the BCT closes on PL TAUBER. The 202nd BSB will establish an ATHP with combat configured loads in the BSA vic NU3010 24 hours after the commencement of the operation.

b. (U) Personnel. The division will execute routine personnel replacement operations until the end of Phase I. Expect limited personnel replacements until the end of Phase II. The goal is to fill battalions to a minimum of 75% strength an optimal level of 85% or above. Priority of support is 4-5 IN; 3-32 AR; and 2-32 AR, with an emphasis on crew replacements for major weapons platforms.

c. (U) Medical. The 202nd BSB provides Level II health care at BSA DEUCE augmented by the 843rd FST from the 84th Medical Brigade. The 825th Medical Company (-) (air ambulance) forward positions aeromedical platforms at BSA DEUCE collocated with the BSMC to facilitate expedient evacuation. Units should evacuate routine and priority patients through the standard evacuation channels and use aeromedical platforms for urgent patients. The 825th Medical Company (-) will Aero MEDEVAC patients to level III facilities; bypassing BSB assets.

APPENDIX C
BRIGADE SUSTAINMENT OVERLAY

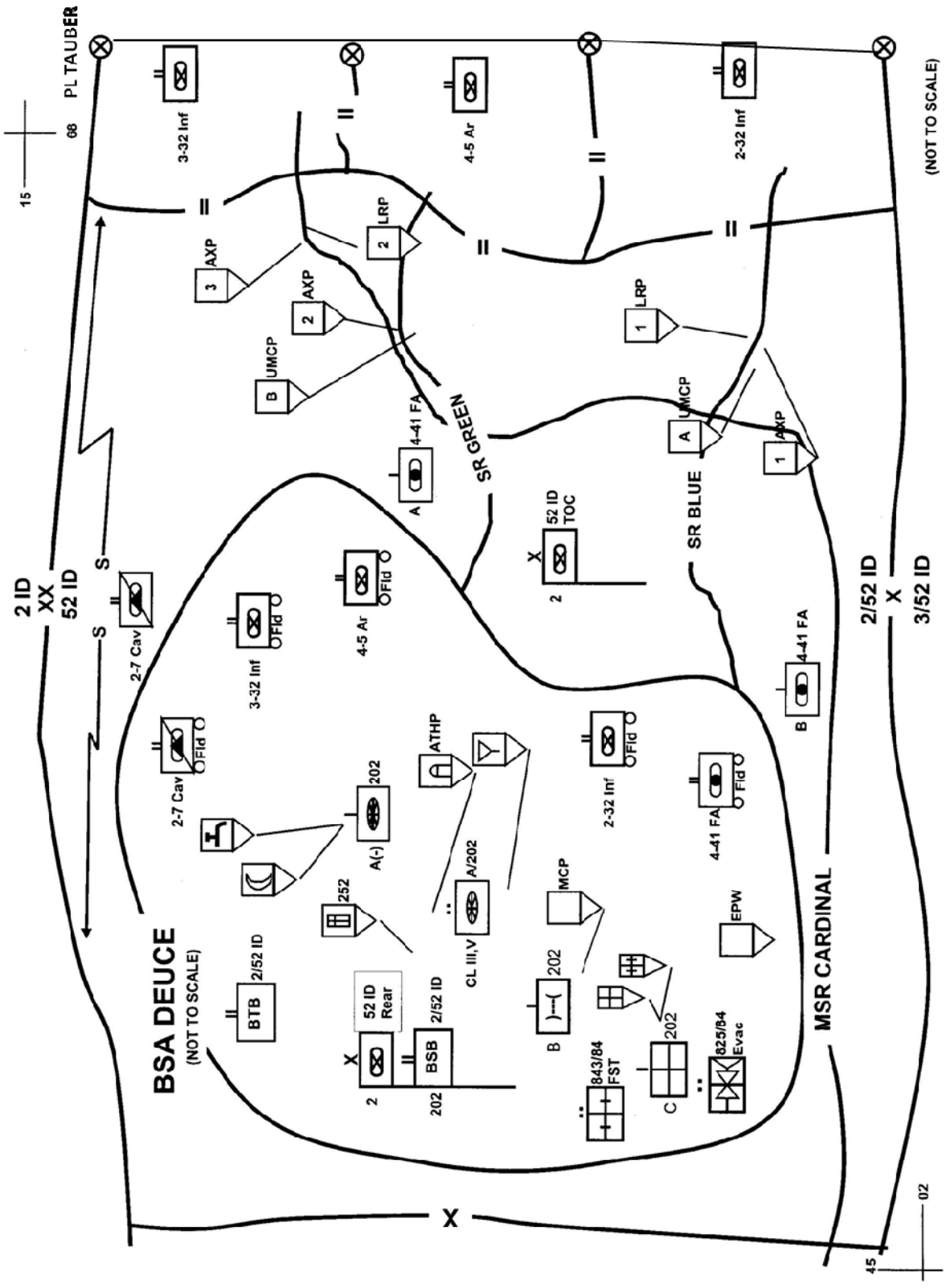

Figure C-1. Brigade Sustainment Overlay.

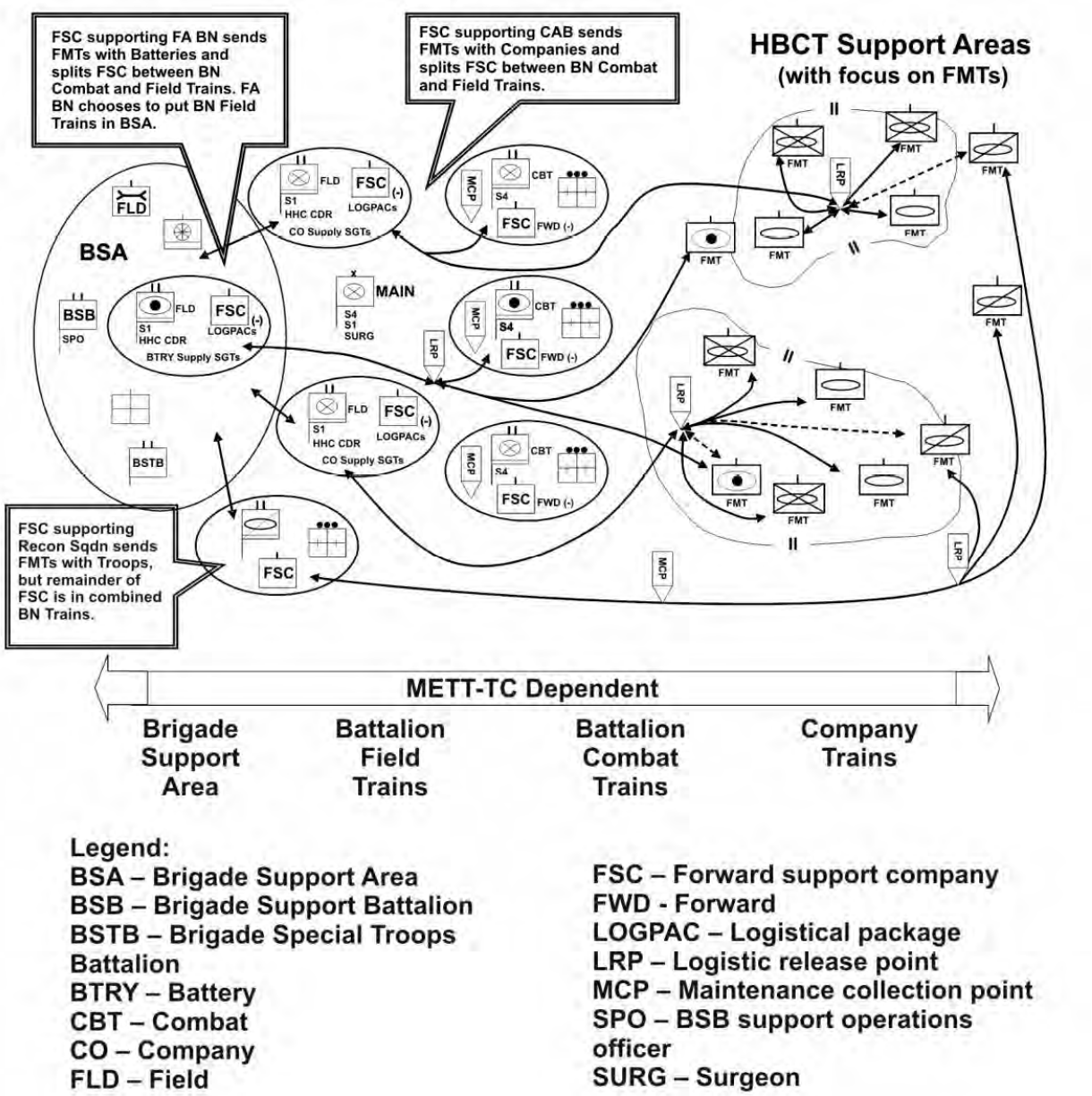

Figure C-2. HBCT Support Areas.[16]

NOTE: *Heavy Brigade Combat Team* (HBCT) has been doctrinally replaced by the unit designation *Armor Brigade Combat Team* (ABCT).

[16] US Department of the Army, FM 3-90.6, *Brigade Combat Team* (Washington, DC: HQDA, 14 September 2010). Chapter 9, Figure 9-2, "Support Unit Locations."

APPENDIX D

DIVISION CONCEPT OF SUSTAINMENT (BY PHASE)

4. (U) Sustainment. 252nd Sustainment BDE establishes LSA LAMP (sustainment overlay) vicinity FRIEDHAUSEN (NU0917), in support of 52 ID (M). 140th CSSB (Area) provides area support to all non-divisional units in zone. 141st CSSB (Heavy) supports 52 ID (M). II Corps' initial priority of support is: 10th CAB; 52 ID (M); 25 AD; 52nd Fires BDE and 2/25 SBCT. 52 ID (M) initial priority of support and replacement is: 52nd Fires BDE; 2/52 BCT; 3/52 BCT; and 1/52 BCT in order. The 84th MED BDE provides health services support to corps troops and back-up to 52nd ID (M). The 842nd and 843rd FST deploy with the 303rd BSB and 202nd BSB respectively, to provide urgent surgery support. The 825th Med Company (Air Ambulance) establishes MEDEVAC section in the LSA LAMP with forward teams in each BSA. Aero-evac authorized forward to battalion aid stations.

Command-regulated items: all CLVII; barrier material; CPOG; CL IX major assemblies (see Annex I). Cannibalization authorized at BSB level. CSRs in effect throughout operations: TOW-- 3 rds/BFV; 120mm APFSDS-- 20/M1. Division MA CP located with 141st CSSB in LSA LAMP and each BSA. Hasty burial not authorized. MSRs FALCON and CROW remain corps regulated routes. Med evac timeline (for entire operation): soldiers needing 48+ hrs care evacuation to 84th MED BDE MSR CARDINAL designated division chemical contamination route under division control. Refugee holding area will be established vicinity OBERFRIEDHAUSEN (NU0818). Division EPW holding area will be located at FRIEDHAUSEN (NU0869), southeast of LSA LAMP. No host nation support available east of PL BLUE DEVIL. Minor risk exists for enemy direct action against LOC and support areas.

PHASE I, deployment. Division deploys from tactical assembly area (TAA) BOOK to brigade attack positions. Phase I initiates with 1st BCT departing TAA BOOK; concludes with closure of all BCTs into assigned attack positions. Priority of support: 52nd Fires BDE; 2/52 BCT; 3/52 BCT and 1/52 BCT in order. Maintenance priority: MLRS; M109s; M1s; M2/3; 5K tankers; PLS and M88s. Aviation maintenance priority: AH-64; OH-58Ds and UH-60s. Forward movement priority: Fires BDE; BCTs and BSBs. Rearward movement priority: casualty evacuation; maintenance evacuation; and refugees. Class III (B) supply priority: 2/52 BCT; 3/52 BCT; 1/52 BCT and 52nd CAB. Minor risk continues for enemy direct action against LOC and support areas.

PHASE IIa, division attack. 52nd ID attacks to defeat enemy lead divisions in zone. Phase begins with 2nd BCT shaping operations attack to seize OBJ WHEELER, and concludes with 3rd BCT decisive operation main effort attack to seize OBJ STUART; destroying enemy lead regiments and DAG. Logistic focus is supporting committed units while echeloning sustainment units and stocks forward into LSA DORIS. Priority of support: initially 2/52 BCT; shifting to 3/52 BCT upon commitment; 2/52 BCT; 52nd Fires BDE; and 1/52 BCT. Priority of support shifts to 1/52 BCT if committed. Personnel replacement, finance support, and field services operations are suspended until division closes on PL TIGER. Ground maintenance priority: M109s; M1s; M2/3s; 5K tankers; forklifts; PLS and M88s. No change to aviation maintenance priorities. Forward movement priority: BCT elements; Fires BDE; and Classes III/V resupply. Rearward movement priority: casualty evacuation, maintenance evacuation, EPWs, and refugees. Limited corps CH-47 support available for emergency CL V resupply. No AXPs permitted east of PL YELLOW JACKET. Aeromedical evacuation is available west of PL TERAPIN only. Division/Sustaining BDE MACP will be established vic. LISBERG (NU 0919) effective H+12. Increased risk to sustainment operations from bypassed enemy forces in zone. BCTs set bypass criteria in sector; bypass of armor/tanks not permitted.

PHASE IIb, division counterattack. This phase begins when the 1/52 BCT occupies AA PILL and counterattacks to destroy the enemy reserve; ending when 3/52 BCT forces all enemy elements (platoon

and larger) east of PL CAMEL. Sustainment focus is committed units then preparation for reconstitution. Division support and personnel replacement priority: 3/52 BCT; 2/52 BCT; 1/52 BCT; and 52nd Fires BDE. No change to ground or aviation maintenance priority. No change to forward or rearward movement priority. Supply priority shifts to CL V: 155mm DPICM, TOW and 120 mm tank rounds. Increased risk to sustainment operations continue from possible bypassed enemy forces.

PHASE III, division hasty defense. Division establishes hasty defense along PL TAUBER and prepares for passage of lines by Pz Lehr Division; conducts sustainment replenishment operations and prepares for follow-on mission. 3/52 BCT and 2/52 BCT deployment to hasty defensive positions along PL TAUBER (operations overlay) and 1/52 BCT assumes division reserve mission vic. AA KONIG. Logistic focus and supply priority is refit/reorganize 1/52 BCT to minimum of 85 percent effective; 2/52 BCT and 3/52 BCT to 70 percent effective. Cross leveling of personnel and equipment to 1/52 BCT authorized. Ground and air maintenance and evacuation priorities remain unchanged. Forward movement priority shifts to: CL VII; replacements; CL IX; CL III(B), and CL V. Rearward movement priorities remain unchanged. Personnel, finance support, and field services resume O/O. 252nd Sustainment BDE relocates to LSA LIGHT vicinity GUTENBERG (NU3010) when the 202nd BSB begins forward displacement. O/O division MA collection point relocates to LSA LIGHT.

APPENDIX E
DIVISION SUSTAINMENT OVERLAY

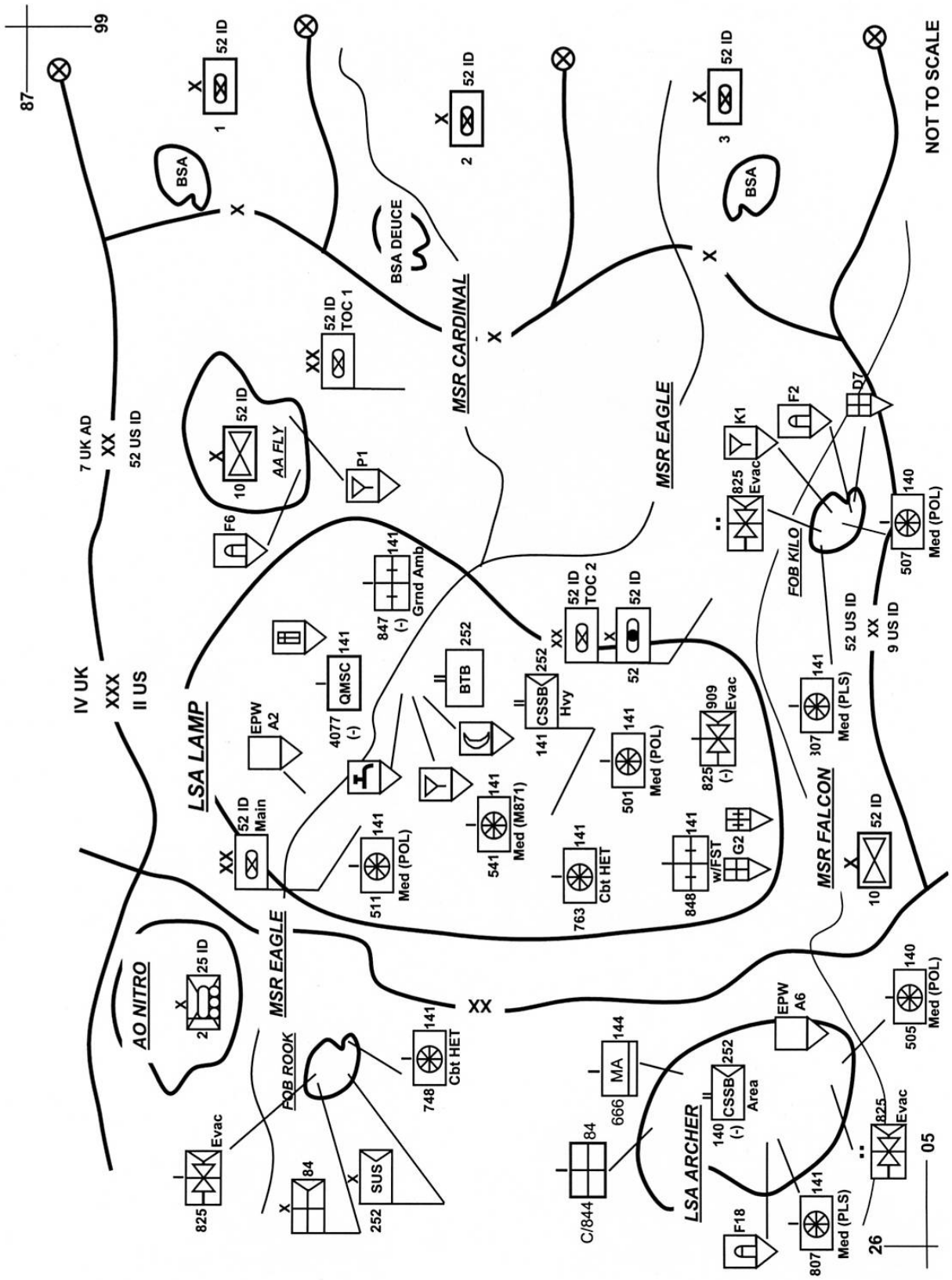

Figure E-1. Division Sustainment Overlay.

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APPENDIX F
DIVISION SUSTAINMENT OVERLAY: NON-CONTIGUOUS DEPLOYMENT

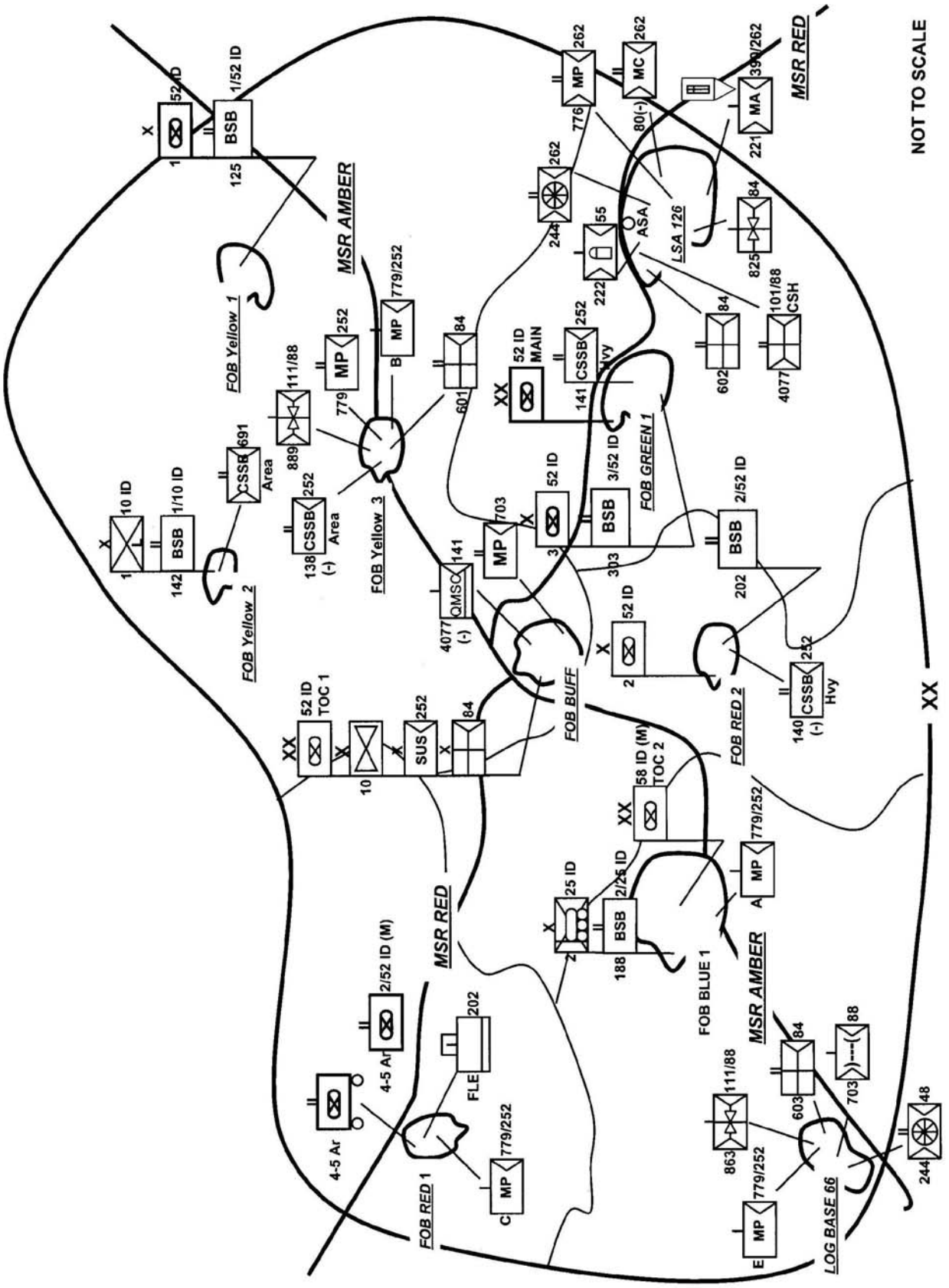

Figure F-1. Division Sustainment Overlay: Non-Contiguous Deployment.

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APPENDIX G

CONCEPT OF SUSTAINMENT MATRIX (DIVISION)

SUSTAINMENT ANNEX _____ TO OPORD_____

SUSTAINMENT FUNCTIONS	PHASE I (Move from TAA to ATK POS - DTG)	PHASE IIa (ATK to Defeat Lead Divisions)	PHASE IIb (Counterattack)	PHASE III (Hasty Defense)
PRIORITY OF SUPPORT	52 Avn, 2 Fires, 2/52 BCT, 3/52 BCT, 1/52 BCT.	2/52 BCT, 3/52 BCT, 52 52 Avn, 52 Fires; 1/52 BCT.	3/52 BCT, 2/52 BCT, 52 Avn, 1/52 BCT, 52 Fires.	1/52 BCT, 2/52 BCT, 52 Avn, 3/52 BCT, 52 Fires.
HUMAN RESOURCES	PRI REPL: 52 Avn, 52 Fires, 2/52 BCT, 3/52 BCT, 1/52 BCT.	PRI REPL: 2/52 BCT, 3/52 BCT, 52 Avn, 52 Fires, 1/52 BCT. Shift to 1/52 BCT if committed. REPL OPS suspended until PL DESK.	PRI REPL: 3/52 BCT, 2/52 BCT, 52 Avn, 1/52 BCT, 52 Fires.	PRI REPL: 1/52 BCT, 2/52 BCT, 52 Avn, 3/52 BCT, 52 Fires. Repl ops resume.
SUPPLY PRIORITY	CL III: 2/52 BCT, 3/52 BCT, 1/52 BCT, 52 Avn. CL V: HELLFIRE, 25mm, 120mm AP, TOW, 155 DPICM.	CL III: 2/52 BCT, 3/52 BCT, 52 Avn, 52 Fires, 1/52 BCT. CL V: 120mm HEAT, TOW, 155 DPICM.	CL III: 3/52 BCT, 2/52 BCT, 52 Avn, 1/52 BCT, 52 Fires, UBL. CL V: 155 DPICM, HELLFIRE, TOW, 120mm AP, UBL.	All Classes: 1/52 BCT, 2/52 BCT, 52 Avn, 3/52 BCT, 52 Fires.
MAINTENANCE	PRI MAINT: MLRS, M109, M1, M2/3, 5K tankers, PLS, and M88.	PRI MAINT: M109, M1, M2/3, FL, PLS, and M88.	PRI MAINT: No change.	PRI MAINT: M1, M109, M2/3, M88.
TRANSPORTATION	PRI FWD: 52 Fires, BCTs, CL III, and CL V. PRI REAR: Casevac, equip evac, and refugees.	PRI FWD: BCTs, 52 Fires, CL III, and CL V. PRI REAR: Casevac, equip evac, EPW, and refugees.	PRI FWD/REAR: No change.	PRI FWD: CL VII, repls, CL IX, CL III, and CL V. PRI REAR: Unchanged.
FIELD SERVICES	FS: Provided by 141 CSSB vic LSA LAMP.	FS: Suspended. Remains evac to MA CP in BSAs/LSA.	FS: No change.	FS: O/O resume in LSA.
CHS	842 FST and 843 FST to 303BSB and 202BSB. 84 Med BDE: area support in division rear.	Aero-evac teams in BSAs. Evac from BAS authorized.	Aero-evac teams in BSAs. Evac from BAS authorized.	Aero-evac teams in BSAs. Evac from BAS authorized.
EOD	EOD on call from LSA LAMP.	No change.	No change.	No change.
FINMGMT	FIN CMD provides support team in LSA/BSAs.	FIN OPS: suspended until PL DESK.	No change.	FIN OPS: resume ops O/O.
REL/LEGAL/BAND	BAND support: Available on call.	No change.	No change.	No change.
SUPPLY ROUTES	Corps: MSR CROW and FALCON. Division: MSR CARDINAL is contaminated rte. BCT: MSR BREEN and BLUE.	No change.	No change.	No change.

NOTE: The phrasing in this matrix corresponds to the division concept of sustainment in appendix d.

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APPENDIX H

BRIEFING FORMATS

SECTION I. MISSION ANALYSIS BRIEFING

Before completing mission analysis, the briefer should be familiar with the—

- AO and area of interest.
- Enemy situation and capabilities.
- Time available to plan and execute operations.
- Friendly troops available.

Mission analysis briefing format.

- Mission and commander's intent two levels up.
- Higher headquarters mission and commander's intent.
- Higher headquarters concept.
- Higher headquarters deception plan.
- Commander's initial guidance.
- Initial intelligence preparation of the battlefield (IPB) products.
- Determine specified, implied, and essential tasks (logistic tasks would be briefed here along with other staff areas).
- Constraints (logistic constraints such as CSR, shortfalls in capability, LOCs, host nation support, etc., would be briefed here).
- Forces available. (Vital information about sustainment forces' availability would be briefed here.)
- Hazards/risks. (Logistic hazards and risks would be briefed here.)
- Recommended initial commander's critical information requirements (CCIR). (CCIR essential to logistic operations could be pointed out here.)
- Recommended timeline. (Logistic timeline information would be combined with other staff recommendations.)
- Proposed restated mission.

NOTE: The level of detail the G-1/G-4 or logistic staff officer provides during the briefing will depend on the target audience and time available.

If time permits or the target audience requires greater detail, supplement the briefing format with the following outline. This outline could be placed under the heading of forces available or under separate headings.

Sustainment functions.

1. Maintenance.

   a. Facts.
      (1) Maintenance status (equipment readiness).
      (2) Class IX status.
      (3) Repair times, evacuation policy, and assets.
      (3) Critical shortages.

b. Assumptions.
   (1) Host nation support.
   (1) Other.
c. Conclusions.
   (1) Projected maintenance status on D-day.
   (2) Shortfalls and critical sustainment risks or events.
   (3) Recommendations.

2. Transportation.

   a. Facts.
      (1) Status of transportation assets.
      (2) Critical LOC and MSR status (air, water, rail, road, and transfer point).
      (3) Critical shortages.
   b. Assumptions.
      (1) Host nation support.
      (2) Other.
   c. Conclusions.
      (1) Projected status of transportation assets on D-day.
      (2) Projected status of LOCs and MSRs.
      (3) Shortfalls and critical sustainment risks or events.
      (4) Recommendations.

3. Supply.

   a. Facts.
      (1) Classes I, II, III(p), IV, VI, VII, X, and water status.
      (2) Critical shortages.
   b. Assumptions.
      (1) Resupply rates.
      (2) Host nation support.
      (3) Other.
   c. Conclusions.
      (1) Projected supply levels and field services status on D-day.
      (2) Shortfalls and critical sustainment risks or events.
      (3) Projected treatment capability.
      (4) Recommendations.
   d. Class III (B).
      (1) Facts.
         (a) Class III(b) status.
         (b) Distribution system (FSSP, ROM, rail to tanker, pipeline, and air).
         (c) Restrictions.
         (d) Critical shortages.
      (2) Assumptions.
         (a) Resupply rates.
         (b) Host nation support.
         (c) Other.
      (3) Conclusions.
         (a) Projected supply status on D-day.
         (b) Projected distribution system.
         (c) Shortfalls and critical sustainment risks or events.
      (4) Recommendations.

e. Class V
   (1) Facts.
      (a) Class V status.
      (b) Distribution system.
      (c) Restrictions.
      (d) Critical shortages.
   (2) Class V assumptions.
      (a) Resupply rates.
      (b) Host nation support.
      (c) Other.
   (3) Class V conclusions.
      (a) Projected supply status on D-day.
      (b) Projected distribution system.
      (c) Shortfalls and critical sustainment risks or events.
   (4) Class V recommendations.

4. Health services support/human resources.

   a. Facts.
      (1) Personnel strengths and morale.
      (2) Replacements and medical RTD.
      (3) Critical shortages.
   b. Assumptions.
      (1) Replacements.
      (2) Host nation support.
      (3) Other.
   c. Conclusions.
      (1) Projected strengths on D-day.
      (2) Projected critical MOS status on D-day.
      (3) Shortfalls and critical sustainment risks or events.
      (4) Recommendations.

5. Field services.

   a. Facts. Location of corps field service units and personnel operating in division AO.
   b. Assumptions. Availability of corps field services capability to divisional units.
   c. Conclusions. Shortfalls in field service capability.

6. Explosive ordnance disposal.

   a. Facts. Location of supporting EOD units.
   b. Assumptions. Availability of EOD capability to divisional units.
   c. Conclusions. Shortfalls in EOD capability.

7. Finance/legal/religious and band.

   a. Facts. Location of finance/legal/religious and band units and personnel operating in division AO.
   b. Assumptions. Availability of finance/legal/religious and band capability to divisional units.
   c. Conclusions. Shortfalls in finance/legal/religious and band capability.

8. Other.

   a. Political analysis.
   b. Economic analysis.
   c. Sociological analysis.

d. Foreign nation support.
e. Assumptions.
   (1) Host nation support.
   (2) Other.
f. Conclusions.
   (1) Projected foreign nation support on D-day.
   (2) Projected host nation support on D-day.
g. Shortfalls and critical sustainment risks/events.
h. Recommendations.

SECTION II. COURSE OF ACTION BRIEFING

Before developing and briefing other staff members on proposed COAs, the G-3 must know and understand—

- Higher headquarters' mission.
- Higher commander's intent.
- Own commander's guidance and intent.
- Terrain and weather.
- Possible enemy COAs.
- Current situation and forces available.
- Relative combat power required for operation.
- Size of units to array.
- Objectives (friendly or enemy).

Course of action briefing format.

- AO and area of interest.
- Updated IPB.
- Possible enemy COAs (event templates).
- The restated mission.
- The commander's and higher commanders' intent (two echelons above).
- The COA statement and sketch.
- The rationale for each COA, including—
    - Considerations affecting enemy COAs.
    - Deductions resulting from a relative combat power analysis.
    - Explanation of unit deployment in sketch.
    - Reasoning for selected control measures.
    - Updated facts and assumptions.

After the briefings, the commander gives any additional guidance. If he rejects all COAs, the staff begins COA development again. If he accepts one or more of the COAs, staff members begin the wargaming process.

SECTION III. WARGAMING BRIEFING

Before conducting war games, the war gamer must know—

- Terrain analysis for the AO.

- Enemy situation and capabilities.
- Friendly and enemy COAs to war-game.
- Friendly forces available.
- What combat multipliers are available.
- Assumptions used.
- List of critical events.
- Wargaming technique(s) to be used.
- Recording method.

Brief for each COA war-gamed.

Wargaming briefing format.

- Higher headquarters mission, higher and next higher commanders' intent, and deception plan.
- Updated IPB.
- Enemy COAs war-gamed.
- Friendly COAs war-gamed.
- Assumptions.
- Wargaming technique used (belt, box, or avenue).
- For each COA war-gamed, provide—
  - Critical events war-gamed.
  - Possible enemy actions or reactions considered during war games.
  - Modifications to the COA (if required).
  - Strengths and weaknesses.
  - Results of the war game that could include the following:
    - — Synchronization matrix.
    - — Proposed task organization and organization for combat.
    - — Decision support template and event template.
    - — Priorities for combat, combat support, and sustainment units.
    - — Estimated time required for operation.
    - — Estimated enemy losses.
    - — Estimated friendly losses.
    - — Significant events (as required).

SECTION IV. DECISION BRIEFING

Before comparing COAs and subsequently briefing the commander on which one he should adopt, the briefers should be familiar with and have available—

- Assumptions.
- COA sketches and statements.
- Wargame worksheets or notes.
- Staff estimates (notes or written estimates).

Decision briefing format.

- Higher headquarters intent (higher and next higher commanders).
- Restated mission.

- Status of own forces.
- Updated IPB.
- Own COAs, including—
  - Assumptions used in planning. Results of staff estimate.
  - Advantages and disadvantages (including risk) of each COA with decision matrix or table showing a comparison. Recommended COA.

*This is the format prescribed by FM 101-5, chapter 5, that is applicable for combat operations. FM 101-5, Appendix E, prescribes a slightly different decision-briefing format for other decisions that don't involve combat.

SECTION V. OPORD/OPLAN BRIEFING

Before briefing the OPLAN or OPORD, the briefer must be familiar with and have available—

- Appropriate maps posted with overlays.
- Higher headquarters completed plan or order.
- Adjacent units' missions.
- Latest intelligence, terrain, and weather data.
- Wargaming notes for selected COAs.

OPORD/OPLAN briefing format.

- Higher headquarters' intent (higher and next higher commanders).
- Assumptions (OPLAN).
- Updated intelligence estimate, including—
  - Terrain analysis.
  - Weather analysis.
  - Enemy situation.
- Paragraph 2—Mission statement.
- Task organization.
- Subparagraph 3a—Concept of operation, including—
  - Scheme of maneuver with decisive, shaping, and sustaining operations.
  - Fire support. (Fire support coordinator may brief here.)
  - Main effort.
  - GS priorities.
  - Decision support template and matrix.
- Subparagraph 3b—Tasks to maneuver units.
- Subparagraph 3d—Coordinating instructions.
- Subparagraph 4a—General support concept. (Use the sustainment overlay for illustration.) It includes—
  - Synopsis of the support command mission.
  - Support command headquarters and support area locations, including locations of next higher logistic bases.
  - Next higher's support priorities and where the units fit into those priorities.
  - Support priorities.
  - MSR control, location, usage.

- Units in the next higher supporting sustainment organization.
- Significant sustainment impacts on operations.
- Before, during, and after operations, or by phase, in terms of significant, critical, non-SOP or sustainment actions or events.
- Any significant sustainment risks.

- Paragraph 5—Command and signal.

SECTION VI. EXECUTION AND SUPERVISION

During order execution, the staff and commander continually process the latest information, determining where and how it affects the operation. They enter the decision-making process based on the type of information received, arrive at a decision, determine the actions required, and issue the necessary orders. Actions and orders are continuously ongoing at all command levels, each dealing with their specific areas of responsibility. This may require going through the entire process again or may mean only minor changes as the impact of facts and assumptions is determined. Regardless, the staff and commander must actively focus on retaining or regaining the initiative during the current operation.

Supervision is ongoing throughout the decision-making process whether it pertains to current or future operations. Through supervision, the commander ensures his decisions are implemented and his intent is understood.

Once the orders are issued, commanders supervise the preparation and execution. Supervision spans a wide variety of activities, including synchronizing the battle and leadership. The commander attempts to orchestrate the battle in concert with the original plan everyone understands; however, the unit must understand the commander's intent and be prepared for change based on any new situation.

Continuity must be maintained and turmoil reduced to a minimum. Synchronization is essential to retain the initiative. Communications must not interfere with subordinate commanders' responsibilities but, rather, should ensure or verify that the mission is being accomplished IAW the overall intent of the force commander and commanders two echelons above the force headquarters. All actions the commander and staff take must—

- Recognize the decision cycle time and the planning horizon (future orientation of planning necessary to synchronize operations).
- Concentrate decisive combat power at the right place and time to defeat the enemy and accomplish the mission.
- Focus on destabilizing the enemy.
- Collect information that will enable the headquarters to determine if the operation is going according to the plan or needs adjustment.
- Capitalize on success.
- Ensure combat power synchronization results in retaining (or regaining) the initiative and will result in victory.

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APPENDIX I

SUSTAINMENT REHEARSAL

ATTP 5-0.1, *Commander and Staff Officer Guide,* chapter 8, for more information on rehearsals. A session in which a unit or staff practices expected actions to improve performance during execution. Rehearsals are staged during preparation, presenting commander's a tool used to ensure staffs and subordinates understand the commander's intent and operational concept. Rehearsals reinforce synchronization across operations in time and place and foster a deeper understanding and familiarity for participants. Rehearsals also provide a visual impression which orients participants with their environment and other units executing the operation. Effective rehearsals further imprint a mental picture of the operational sequence of key actions. Finally, they provide a forum where subordinate and supporting leaders and units can discuss and coordinate. The extent of rehearsals depends on available time. Rehearsals contribute to external and internal coordination. They accomplish the following:

- Reveal unidentified external coordination requirements.
- Help synchronize the operation at key points by identifying times and locations that require coordination and solutions for coordinating actions.
- Support internal coordination by identifying tasks needed to accomplish external coordination.
- Update internal coordination techniques such as the synchronization matrix and the decision support template.

Whenever possible, rehearsals are based on a completed operation order (OPORD). Each rehearsal is a coordination event, not an analysis. It is not a substitute for war-gaming during the military decision making process (MDMP) to analyze competing courses of action (COAs). Rehearsals are conducted during preparation to practice executing the selected COA. Commanders must avoid making major changes to OPORDs during rehearsals. They make only those changes essential to mission success.

Purpose. The purpose of appendix i is to provide the logistician with an understanding of the types of rehearsals and the various techniques. The sustainment rehearsal validates the concept of sustainment for the COA derived during the MDMP. Support rehearsals generally are limited to the lower edge of the tactical spectrum, at brigade and below, though occasionally may be employed at the division level. The sustainment rehearsal is a process used to articulate, validate, and sustain ones wargaming results.

Types of rehearsals. There are several types of rehearsals, each achieving a different result and meeting a specific preparation timeline. The five types of rehearsals are:

- Confirmation brief.
- Back brief.
- Combined arms rehearsal.
- Support rehearsal.
- Battle drill or SOP rehearsal.

Conformation brief. This is routinely performed by a leader immediately after receiving instructions (OPORDs or FRAGOs). Subordinate leaders review and communicate their understanding of the commander’s intent, their units’ specific tasks and purpose, and the relationship between their individual unit missions and those of other units in the operation.

Back brief. This is conducted by subordinates; they brief the commander to review how they intend to accomplish their mission. Back briefs allow commanders to clarify their intent early in subordinate planning so that problems in the concept and in the subordinate commanders’ operational concepts can be identified early and also so that they can learn how subordinates intend to accomplish their missions.

Combined arms rehearsal. This is a maneuver unit headquarters normally executes with all combined arms elements after subordinate units issue their OPORD. This rehearsal type ensures that subordinate units synchronize their plans with each other, and ensures that subordinate commanders' plans achieve the higher commander's intent.

Support rehearsal. This is conducted by subordinate units within the framework of a single or limited number of battlefield operating systems (BOSs). They are referred to by the primary BOS being rehearsed, for example, the fire support rehearsal or the sustainment rehearsal. Units execute support rehearsals throughout preparation. Although these rehearsals differ slightly by BOS, they achieve the same results, ensuring that those responsible for each BOS can support the OPORD, can accomplish all their missions, and can ensure that each BOS is synchronized within the overall operation. It is important for logistic leaders to train subordinates in planning and executing sustainment rehearsals.

Battle drill or SOP rehearsal. This ensures all participants understand a technique or a specific set of procedures. All echelons use this rehearsal type; however, they are most common for platoons, squads, and sections. They are performed throughout preparation and are not limited to published battle drills. Actions such as a command post (CP) shift changes, an obstacle breach, lane-marking SOPs, or refuel-on-the-move site operations can be rehearsed.

Rehearsal techniques. Techniques for executing rehearsals are limited only by the commander's resourcefulness. There are generally, six techniques commonly used. Each type of rehearsal can be designed using all or any combination of the rehearsal techniques. As listed below, each successive technique takes a decreasing amount of time and resources. Each rehearsal technique provides a different degree of understanding on the part of participants and is defined by the four factors: time, echelons involved, operations security, and terrain.

- *Time.* The amount of time required to conduct (plan, prepare, execute, and assess) the rehearsal.
- *Echelons involved.* The number of echelons that can participate in the rehearsal.
- *Operations security (OPSEC).* The ease with which the enemy might gather intelligence from the rehearsal.
- *Terrain.* Factors affecting the rehearsal space allocation and how it will be secured for the rehearsal.

Full dress rehearsal. This technique produces the most detailed understanding of the operation because it involves every participating soldier and system. Preferably, it should be conducted under the same conditions—weather, time of day, terrain and use of live ammunition—that the force expects to encounter during the actual operation. It is the most difficult to accomplish at higher echelons. Full dress rehearsal considerations include the following:

- *Time.* This is the most time consuming, but for companies and smaller units, it is the most effective technique to ensure everyone understands their role. Commanders must consider the planning and preparation time their subordinates need and compare them with the time and potential benefits of a full dress rehearsal.
- *Echelons involved.* A subordinate unit can perform a full dress rehearsal as part of a larger organization's reduced-force rehearsal.
- *OPSEC.* Moving a large part of the force may attract enemy attention. Commanders develop a plan to protect the rehearsal from enemy surveillance and reconnaissance. One method is to develop a plan, including graphics and radio frequencies that would include selected actions without compromising the actual OPORD. Commanders must take care to not confuse subordinates when doing this.
- *Terrain.* Terrain management for a full dress rehearsal can be difficult if it is not considered during the initial force array. The rehearsal area must be identified, secured, cleared, and maintained throughout the rehearsal.

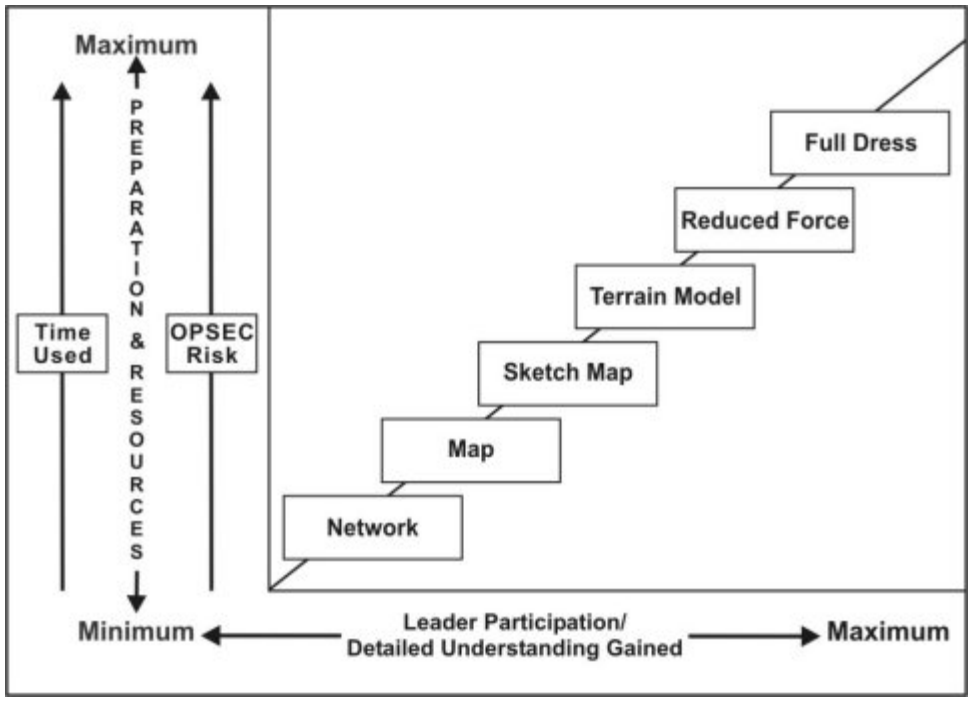

Figure I-1. Rehearsal Techniques Relative to Time, Resources, OPSEC, Participation, and Understanding.

Reduced-force rehearsal. A reduced-force rehearsal involves only key organizational leaders those of subordinate units. It normally takes fewer resources than does a full dress rehearsal. Terrain requirements can be the same as for a full dress rehearsal even though there are fewer participants. First, the commander decides the level of leader involvement. Then, the selected leaders rehearse the plan while traversing actual or similar terrain. Commanders often use this technique to rehearse fire control measures for an engagement area during defensive operations. A reduced-force rehearsal may be used to prepare key leaders for a full dress rehearsal. It may require developing a rehearsal plan that mirrors the actual plan but that fits the rehearsal terrain. Reduced-force rehearsal considerations include the following:

- *Time.* A reduced-force rehearsal normally requires less time than a full dress rehearsal. Commanders consider the time their subordinates need to plan and prepare when deciding whether to conduct a reduced-force rehearsal.
- *Echelons involved.* A small unit can perform a full dress rehearsal as part of a larger organization's reduced-force rehearsal.
- *OPSEC.* A reduced-force rehearsal is less likely to present OPSEC vulnerabilities than would a full dress rehearsal because the number of participants is smaller. However, the number of radio transmissions required is the same as for a full dress rehearsal and remains a consideration.

Terrain. Terrain management for the reduced-force rehearsal can be just as difficult as for the full dress rehearsal. The rehearsal area must be identified, secured, cleared, and maintained throughout the rehearsal.

Terrain-model rehearsal. The terrain-model rehearsal (also known as a rock drill) takes less time and fewer resources than a full dress or reduced-force rehearsal requires; it is the most popular rehearsal technique. A terrain-model rehearsal takes a proficient brigade from one to two hours to execute to standard. An accurately constructed terrain model helps subordinate leaders visualize the commander's intent and operational concept. When possible, commanders place the terrain model where it overlooks

the actual terrain of the area of operations (AO). However, if the situation requires more security, they place the terrain model on a reverse slope within walking distance of a point overlooking the AO; the model's orientation coincides with that of the terrain. The size of the terrain model can vary from small (using markers to represent units) to large (on which the participants can walk). A large model helps reinforce the participants' perception of unit positions on the terrain. Terrain-model rehearsal considerations include the following:

- *Time.* Often, the most time-consuming part of this technique is constructing the terrain model, but simple models can be used. Units require a clear SOP stating how the model will be built to ensure the model is accurate, large, and detailed enough to rehearse the operation. A good SOP also states who will build the terrain model and when it will be built.
- *Echelons involved.* Because a terrain model is geared to the echelon conducting the rehearsal, multi-echelon rehearsals using this technique are difficult.
- *OPSEC.* This rehearsal can present OPSEC vulnerabilities if the area around the rehearsal site is not secured. The collection of commanders and their vehicles can also draw enemy attention. Units must sanitize the terrain model after completing the rehearsal.
- *Terrain.* Terrain management is less difficult than with the previous techniques. A good site is one that is easy for participants to find, yet it must be concealed from the enemy. An optimal location overlooks the terrain where the unit will execute the operation.

Sketch-map rehearsal. Commanders can use the sketch-map technique almost anywhere, day or night. The procedures are the same as for a terrain-model rehearsal, except the commander uses a sketch map in instead of a terrain model. Effective sketches are large enough for all participants to see as each participant walks through executing the operation. Participants move markers on the sketch to represent unit locations and maneuvers. Sketch-map rehearsal considerations include the following:

- *Time.* Sketch-map rehearsals take less time than terrain-model rehearsals, and take more time than map rehearsals.
- *Echelons involved.* Because a sketch map is geared to the echelon conducting the rehearsal, multi-echelon rehearsals using this technique are difficult, but overlays help in this regard.
- *OPSEC.* This rehearsal can present OPSEC vulnerabilities if the area around the rehearsal site is not secured. The collection of commanders and their vehicles can draw enemy attention.
- *Terrain.* This technique requires less space than a terrain model rehearsal requires. A good site is easy for participants to find, yet is concealed from the enemy. An optimal location overlooks the terrain where the unit will execute the operation.

Map rehearsal. A map rehearsal is similar to a sketch-map rehearsal, except that the commander uses a map and an operations overlay of the same scale used to plan the operation. Map rehearsal considerations include the following:

- *Time.* The most time-consuming part is the rehearsal itself. A map rehearsal is normally the easiest technique to set up, since it only requires maps and current operational graphics.
- *Echelons involved.* Because a map is geared to the echelon conducting the rehearsal, multi-echelon rehearsals using this technique are difficult but overlays help in this regard.
- *OPSEC.* This rehearsal can present OPSEC vulnerabilities if the area around the rehearsal site is not secured. The collection of commanders and their vehicles can draw enemy attention.
- *Terrain.* This technique requires the least space. A good site is easy to find for participants, yet it is concealed from the enemy. An optimal location overlooks the terrain where the unit will execute the operation.

Network rehearsal (WAN/LAN). Network rehearsals can be executed over wide-area networks (WANs) or local-area networks (LANs). Commanders and staffs execute network rehearsals by talking through critical portions of the operation over communications networks in a sequence the commander establishes. The organization only rehearses the critical parts of the operation. These rehearsals require all information systems (INFOSYS) needed to execute that portion of the operation. All participants require working INFOSYS and a copy of the OPORD and overlays. CPs can rehearse battle tracking during network rehearsals (see Figure J-2 for an example of a SOP extract for a sustainment FM rehearsal). Network rehearsal considerations include the following:

- *Time.* If the organization does not have a clear SOP and if all units do not have working communications or if they are not up on the net, this technique can be very time consuming.
- *Echelons involved.* This technique lends itself to multi-echelon rehearsals. Participation is limited only by the commander's desires and the capabilities of the command's INFOSYS.
- *OPSEC.* If a network rehearsal is executed from current unit locations, the volume of the communications transmissions and potential compromise of information through enemy monitoring can present OPSEC vulnerabilities.
- *Terrain.* If a network rehearsal is executed from unit locations, terrain considerations are minimal.

Sustainment rehearsal preparation. Most units in the Army have sustainment rehearsal SOPs or TTPs that require that the rehearsing unit gather specific information.

Participating units. Participating units must be identified and notified.

Terrain orientation. The BCT S-3 or his designated representative provides details about the terrain on which the mission will be conducted.

APPENDIX 4 (FM SUSTAINMENT REHEARSAL) TO
ANNEX F (SUSTAINMENT) to OPORD XXXX

1. BCT S-4 initiates FM rehearsal with a Net Call on the xxxx Net.

2. Participants (sequence of respondents):

   BCT S-4
   BCT XO
   BRT 1SG
   AR S-4
   IN S-4
   EN S-4
   FA S-4
   BSB SPO

3. Status of Reconstitution:

   Personnel – BCT REAR CP
   Equipment – BCT REAR CP

4. Rehearsal by unit, units brief:

    Current combat power
    Projected combat power
    Additional support required to meet projected combat power
    Critical Classes of supply (current and in 24 hours):
    CL III(B)
    CL III(P)
    CL V
    Status of support systems available
    Sustainment Rehearsal Card
    Unit Locations
    Unit Logistic Locations
    AXP Locations –BSB
    BCT CPs – BCT S-4

5. Alibi / Conclusion

Figure J-2. SOP Extract for Sustainment Network Rehearsal.

Enemy situation/most likely COA. The G-2/S-2 provides the enemy situation and the enemy COA in order to depict the situation for sustainment executors and also focuses on the enemy threat as it pertains to the sustainment battlefield operating system. The G-2/S-2 also advances the enemy during the rehearsal to depict the most likely COA. The depiction must tie enemy actions to specific terrain or to friendly unit actions.

Friendly situation/maneuver COA. The G-3/S-3 or his designated representative provides the friendly situation and the unit's maneuver plan for sustainment executors.

Friendly unit actions. The G/S-4 uses time-phased events to develop the rehearsal. Subordinate units provide the following information:

- Location of maneuver units.
- Location and purpose of all known obstacles on the battlefield, including known enemy obstacles.
- Planned location of friendly obstacles or mines.
- Location of all sustainment assets (grids or command points).
- Location and amount of CL IIIB and V in TF combat trains.
- Logistic release points.
- Ambulance exchange points (AXP).
- Main, alternate and contaminated supply routes and their control HQ.
- Current LOGSTAT.
- Maintenance and recovery assets and collection points.
- Admin and log radio nets.
- EPW and detainee collection points.
- Logistical displacement triggers and timelines.
- Location of level II medical facilities.
- Air evacuation routes and deconfliction of air space.
- Location or composition of: BCT FLE, CL IIIB, CL V, maintenance, medical, and water.

A technique used by some units is to publish this information so that rehearsal participants and observers take with them a quick reference sheet that outlines a common operating picture for logistic operational support. An individual is identified to post the rehearsal card in a large poster format and to ensure that the information is filled in. The same individual then reduces the information to a notebook-size "take-away" card so that all rehearsal attendees depart with information that will ensure a common operating picture for sustainment operational support. (See Figure J-3.)

Rehearsal type selection. The commander selects the type of rehearsal based on time, the echelons involved, OPSEC, and terrain. Once the commander selects the type of rehearsal, the XO begins planning, ensures that sufficient time is allotted, and that required personnel are identified. A recorder to take notes must also be identified; the recorder's role is necessary for an effective rehearsal, capturing all issues that arise. The rehearsal will only pause for war-stopping issues; otherwise, the recorder will write down all relevant comments for action later. The XO will also ensure that an agenda and script are produced and distributed to units participating in the rehearsal. The type of rehearsal will drive whether a rehearsal area, a terrain board, or a map must be prepared.

Identify the rehearsal briefers and the audience. The rehearsal audience is critical to executing the logistic plan. The most effective rehearsal occurs when each battlefield operating system's (BOS) commanders, executive officers, and primary staff attend. Unfortunately, this is difficult to achieve. At a minimum, rehearsal success hinges on identifying those briefers who provide sustainment command and control and who are responsible for executing specific sustainment missions. Commanders will typically delegate his or her rehearsal responsibilities to executive officers, assistant commanders, or deputy commanders (depending on the tactical level), since doctrinally, sustainment is one of their primary responsibilities. If designated representatives are chosen to replace primary briefers, they should be competent with the plan. Failure to prepare designated representatives will result in unproductive rehearsals; briefers should arrive prepared and ready to discuss their respective actions during the rehearsal. Below is a proposed sustainment rehearsal briefer/audience listing.

Determine the rehearsal location. The rehearsal's location is largely dependent on METT-TC; the ideal location is with the maneuver rehearsal. If sustainment rehearsals occur at locations other than the maneuver rehearsal locations, the right players should attend. The advantages of having sustainment rehearsals following maneuver rehearsals is audience availability, use of maneuver terrain models, and attendees sharing a common battlefield view.

The sustainment rehearsal location should be centrally located to support the majority of participants and should provide adequate space and support for the number of attendees. Sustainment rehearsals, along with maneuver rehearsals, should be included in the mission analysis timeline. During backwards planning, sufficient time should be allocated to sustainment rehearsal planning, preparation, and execution. The amount of time required for executing the rehearsal is typically METT-T driven. Turning away participants due to lack of planning for sufficient space only degrades the rehearsal's effectiveness. Units must plan in advance for security measures, parking, TOC passes, and logistic support.

BCT CSS REHEARSAL CARD

BAS LOCATIONS

UNIT	PHASE	FAS	MAS	TRIGGER	FREQUENCY	CALLSIGN
IN	1					
	2					
	3					
	4					
AR	1					
	2					
	3					
	4					
FA	1					
	2					
EN	1					
	2					

AXP LOCATIONS

AXP	LOCATION	UNIT	TRIGGER
1			
2			
AXP MOVES			
1			
2			

CL IV/V LOCATIONS

	LOCATION	UNIT	TRIGGER

UNIT LOG INFORMATION

UNIT	PHASE	UMCP	CTCP	LOGPAC TIMES
IN				
AR				
FA				
EN				

BCT CCP LOCATIONS

CCP	LOCATION	RESPONSIBLE UNIT
6		
7		
14		
15		
16		
17		

BRT OP LOCATIONS

OP	LOCATION	OTHER UNITS NEARBY
5		
6		
7		
8		

DECON

DECON PT	1	
	2	
	3	
	4	
	5	

KEY LOGISTICS INFORMATION

UNIT	LOCATION	GRID	FREQUENCY	CALLSIGN

Figure I-3. Sustainment Rehearsal COP Quick Reference Sheet.

BCT SUSTAINMENT REHEARSALS

AUDIENCE (not all inclusive)	BCT commander, BCT XO, BCT S-1, BCT S-2, BCT S-3, BCT S-4, BRT commander, TCF commander, reserve commander, TF commanders or XOs, BSB/CSSB S-4s, medical platoon leaders, HHC commander, BSB commander, BSB SPOs, and FSC commanders.
REMARKS	The BCT XO facilitates the BCT sustainment rehearsal and assigns a recorder.

DIVISION SUSTAINMENT REHEARSALS

AUDIENCE (not inclusive)	Assistant commander for support, chief of staff, G-1 representative, G-2 representative, G-3 representative, G-4, division transportation officer, G-4 planner, BCT XOs, sustainment BDE LN, sustainment BDE commander and SPO, CSSB commanders/SPOs, movement control officer (MCO), BSB commanders/SPOs, surgeon, and BCT commanders/XOs.
REMARKS	The assistant commander oversees the division's rehearsal with the CoS and G4 as facilitators.

CORPS SUSTAINMENT REHEARSALS

AUDIENCE (not inclusive)	Deputy corps commander, corps G-1, G-2 representative, G-3 representative, G-4, corps surgeon, TSC commander/SPO, MCC, MMC, sustaining BDE commanders, CSSB and functional battalion commanders, ME BDE commanders, aviation BDE commanders, BSB commanders, division G4s and planners, division transportation officers, sustaining BDE commander/SPO, CSSB commander/SPO, BCT S-4, BSB commanders/SPO, division surgeon, and BCT commander/XO.
REMARKS	The deputy corps commander chairs the sustainment rehearsal with the G4 as the facilitator.

Figure I-4. BCT, Division, and Corps Sustainment Rehearsals.

Maximize the use of the terrain model. As mentioned earlier, the sustainment rehearsal should normally follow the maneuver rehearsal. This allows for maximizing the use of pre-made terrain models and equipment, thus reinforcing the current battlefield as viewed by most players. An effective terrain model technique is the sand table. It provides a 3-dimentional picture of the area of operation and includes cities, major terrain features, and pre-made unit icons. At a minimum, the sustainment rehearsal terrain model should include the following control measures:

	BCT	Div	Corps
TERRAIN MODEL CONTROL MEASURES	● Boundaries. ● Phase lines. ● Objectives. ● EAs. ● Artillery cache points. ● Division MSRs (clean and dirty). ● BCT SRs (primary and alternate). ● Division support area location. ● BSA location. ● BSB (supply points and ATHP). ● FST and AXPs. ● Decontamination sites. ● Battalion CPs and field trains. ● Battalion combat trains. ● Medical BDE MEDEVAC and support assets in BCT AO.	● Boundaries. ● Phase lines. ● Objectives. ● EAs. ● Corps MSRs (clean and dirty). ● Division MSRs (and alternate). ● Sustaining BDE location. ● Division LSA location. ● BSA. ● Division CPs. ● ROM locations. ● Aviation BDE FARPs. ● Fires BDE HQs. ● ME BDE HQs. ● Medical BDE - CSH location. ● BCT CP locations.	● Boundaries. ● Phase lines. ● Objectives. ● EAs. ● Corps MSRs (clean and dirty). ● Division MSRs (and alternate). ● LSA locations (primary/alternate). ● Sustaining BDE HQs location. ● CSSB locations. ● TSC HQ. ● Division LSA locations. ● BSA locations. ● Division CPs. ● Medical BDE-CSH locations. ● Bulk fuel locations. ● ASP locations. ● Personnel service locations.

Figure I-5. Terrain Model Control Measures.

Sustainment rehearsal execution.

Conducting the sustainment rehearsal is an art. The most effective rehearsals result from thorough planning, coordination, and integration with maneuver units. The sustainment rehearsal format is similar to the maneuver rehearsal format, but integrates sustainment into all aspects of the operation. The rehearsal format should be approved, included in SOPs and trained at home station prior to deployments. All players/briefers should arrive at the rehearsal fully prepared. Figures 4, 5, and 6 provide TTPs for sustainment rehearsal agendas at BCT, division, and corps levels. The matrices identify the sequence and speaker, areas briefed, remarks, and responsibilities of the briefer.

Adjust/Execute. At the conclusion of the rehearsal, the facilitator reviews all outstanding issues from the recorder. Outstanding issues are either resolved or given back to units as taskings with suspenses. Once issues are resolved, units make necessary adjustments to concepts of support and begin execution. Proactive logisticians anticipate changes to the plan and immediately adjust to outcomes from the rehearsal. Time is of the essence and responsiveness to change is critical.

COMPANY COMMANDER'S CUE CARD BN TASK FORCE *OFFENSIVE MISSION* COMBINED ARMS REHEARSAL
1. Task Organization (include status of Link-up w/ attached and detached elements) 2. Current Combat Power / Projected combat power at LD 3. CO/TM/TRP Mission: Task / Purpose by PHASE OF OPERATION 4. Unit's Current Location and Actions (Status of Prep) 5. Unit's Plan to move to the LD 6. Scheme of Maneuver (PL to PL or by Phases of the Operation)
• Describe Formation of CO/TM and PLT (to include attachments) – Brief location of CO, XO, and FSO (Vee/Wedge/Line/Column/Echelon left/right) • Describe Unit Movement Technique at CO and PLT level (Traveling/Traveling Overwatch/Bounding Overwatch) • Describe Unit Direct Fire Plan and Direct Fire Control Measures (be specific)(orientation of each sub-unit and how we are achieving 360 degree security) • Describe Unit Indirect Fire Plan in terms of EFSTs, active TGTs, and Observer Plan/Location • Describe Unit Actions on Contact to the seven forms of contact at expected and unexpected locations – Talk Battle Drills and how you intend to develop the situation (See Cartoon) • Describe how Unit will maintain contact with adjacent units
7. Actions on the OBJ (M/E) or Concept of Support of the M/E attack/assault on the OBJ • Describe Maneuver / Support / Breach plan (where are platoons at and what are they doing – Task and Purpose of each sub-unit) • Describe Direct Fire Control Plan and Measures in detail (include RFLs and Triggers to Lift/Shift Fires) • Describe Unit Plan for Indirect Fire Support for the assault on the OBJ (observers/targets/triggers) • Describe Unit Plan for Consolidation and Reorganization 8. CSS
• Location of Company Trains • Concept of Support (CASEVAC, Maintenance, Commo, CL III/V resupply) • Active Casualty Collection Points (CCPs) and CASEVAC routes each phase of the operation • Projected status of CL III/V on the OBJ
9. ISSUES
• Brief show-stoppers AND Concerns

Figure I-6. Company Commander's Cue Card for Battalion-Level, Offensive Combined Arms Rehearsal.

BCT rehearsal agenda.

Sequence Speaker	Areas Covered	Remarks	Responsibilities
1. BCT XO	Conducts roll call.	Verifies attendees (BCT S-1, S-2, S-3, S-4, BCT/battalion CSMs, BSB SPOs; FSC commander/1SGs, HHC commanders, medical company commanders).	Rehearsal facilitator. Timeline manager.
2. BCT CDR	Opening remarks.	Provides commander's guidance for sustainment rehearsal.	
3. BCT S-3	Overview model, task organ, friendly situation, mission, operational concept, commander's intent.	Includes: boundaries and friendly force locations.	Model set up. Coordinate with S-4 and BSB SPO for sustainment terrain model control measures.
4. BCT S-2	Provides an overview of the enemy situation.	Focuses on enemy threats pertaining to logistics (i.e., along MSRs, to rear areas, impacts of refugees, civilians, and terrorist). Includes chemical threat.	Displays enemy symbols on the terrain model.
5. BCT S-4	Provides an overview of logistics.	Includes brigade support unit locations, MSRs (primary and alternate)—TF support infrastructure (BCT internal).	The S-4 provides a snapshot of Paragraph 4a (concept of sustainment) to the BCT order.
6. BCT S-1	Provides the personnel status by unit.	Includes critical shortages and replacements.	
7. BSB SPT OPS	Covers all sustainment actions BEFORE Phase I.	Includes the support task organization, sustainment unit locations in the BCT support area, the status of O/H stocks, and sustainment asset protection.	*Sustainment* actions BEFORE combat operations set the conditions for success. Information covered here is critical.
8. BCT S-3	Covers the operational concept by phase, beginning with phase I.	Sets the stage for the rehearsal by reading when each phase begins and ends.	Turns it over to the next briefer.
9. BN, TCF *	The BN XOs cover maneuver actions during phase I, while S-4s cover battalion-level logistics supporting phase I.	The key to these briefings is ensuring the battalion has synchronized sustainment within the unit. S-4s brief locations of battalion-level sustainment assets.	MAN BN, ENG, and FA XOs with S-4s should come prepared to discuss organizational sustainment support.
10. BSB SPT OPS	Covers sustainment actions during phase I.	Focuses on sustainment support during phase I. Specific actions include support priorities (by unit), supply and movement forward and rearward. Also discusses supporting TCF in BSA.	Includes any other specific sustainment area, as required by BCT XO, such as current combat power status and DS stock status.
11. BCT S-3	Covers actions during phases II-IV.	Reads when each phase begins and ends.	
12. BN, TCF	Covers actions in each phase. Refer to sequence #9.	Refer to sequence #9.	
13. BSB SPO	Covers sustainment actions by phase.	Refer to sequence #10.	
14. BCT XO	The scribe reviews support issues and then concludes rehearsal.	Tasks respective units.	

Figure I-7. BCT Sustainment Rehearsal Agenda.

Division Rehearsal Agenda.

Sequence/ Speaker	Areas Covered	Remarks	Responsibilities
1. CHIEF OF STAFF	Conducts roll call.	Verifies attendees. Should include at a minimum: division S-1, S-2 or representative, S-3 or representative, S-4, BCT and BCT commanders, BCT unit ministry teams, BCT CSMs, medical brigade commanders, CSMs and S-3s, maneuver enhancement brigade commanders, CSMs, and S-3s, sustainment brigade commanders, CSMs and SPOs, BSB commanders and SPOs; FSC commanders, HHC commanders, support platoon leaders, medical company commanders, contractor battlefield POCs, and the recorder.	Facilitator of rehearsal. Timeline manager.
2. Asst CDR for Support	Opening remarks.	Provides commander's guidance for the sustainment rehearsal.	
3. DIV G-3 or Representative	Provides overview of terrain model/states the task organization, the friendly situation, the mission, the operational concept, and commander's intent.	* The terrain overview includes: unit boundaries, and the friendly force locations (in AAs and ATK POS).	Responsible for terrain model set up. Also responsible for coordinating with DIV G4 sustainment terrain model control measures.
4. DIV G-2 or Representative	Provides overview of enemy situation.	Focuses on enemy logistic threats (i.e., along MSRs, to division rear area, impacts of refugees, civilians, and terrorist). Includes chemical threat.	Displays enemy symbols on the terrain model.
5. DIV G-4	Provides overview of logistics.	Includes support unit locations, MSRs, (primary and alternate)—division support infrastructure.	The G4 provides a snapshot of paragraph 4a (concept of sustainment) to the division order.
6. DIV G-1	Provides personnel status by unit.	Includes critical MOS shortages and replacements.	
7. DIV G-4, Sustainment BDE CDR/ SPO Surgeon with input from BSB CDRs	Covers all DS actions BEFORE phase I.	Includes support task organization, DS sustainment unit locations in DSA (including corps), the O/H stock status, and sustainment asset protection. Includes all division medical asset locations (including corps augmentation).	
8. DIV G-3	Covers the operational concept by phase, beginning with phase I.	Sets the stage for the rehearsal by reading when each phase begins and ends.	Turns over to next briefer.
9CAB, BCT 1, BCT 2, BCT 3, CavalryMEB, Fires BDE, SIG, ADA, MI, TCF	BDE XOs cover maneuver actions during phase I, while S-4s cover BCT-level logistics supporting phase I.	The key to these briefings is ensuring maneuver BCTs have synchronized sustainment within the unit. BSB commanders brief BCT sustainment asset locations (to include BSB/FSC actions).	All briefers should be prepared to discuss internal sustainment support. Phase I normally begins with the cavalry and aviation briefing reconnaissance mission and deep fight information.
10. Provost Marshal and Reserve	Covers phase I, including sustainment mission command and PM actions in the rear.	Includes TCF and reserve support discussion.	

11. BSB and Sustainment BDE SPO	Covers phase I BSB and sustainment BDE actions.	Focuses on phase I DS support. Specific actions include support priorities (by unit), supply, and movement forward and rearward. Location of division support area, corps ASP, ATP, and POL sites in division support area. Lastly, discusses critical man, arm, fuel, fix, move sustain (MAFFMS) issues.	Also includes any other specific sustainment area, as required by chief of staff, such as current combat power status and status of division sustainment stocks.
12. SURG	Covers the phase I medical support concept.	Focuses on evacuation asset and CSH locations.	
13. DIV G-3	Covers actions during phases II -IV.	Reads when each phase begins and ends, then turns it over to the next briefer.	
14.CAB, BCT 1, BCT 2, BCT 3, CAV, MEB, Fires BDE, SIG, ADA, and MI	Covers actions in each phase. Refer to sequence #9.	Refer to sequence #9.	
15. BSB and Sustainment BDE SPO	Covers DS actions during each phase. Refer to sequence #11.	Refer to sequence #11.	
16. SURG	Covers medical support for each phase. Refer to sequence #12.	Refer to sequence #12.	
17. CHIEF OF STAFF	Has scribe review support issues, concludes rehearsal.	Tasks respective units.	

Figure I-8. Division Sustainment Rehearsal Agenda.

Corps Rehearsal Agenda.

Sequence/ Speaker	Areas Covered	Remarks	Responsibilities
1. Corps G4	Conducts roll call.	Verifies attendees. Should include at a minimum: div S-1, S-2 or rep, S-3 or rep, S-4, BCT and BCT CDRs, BCT unit ministry teams, BCT CSMs, medical brigade CDRs, CSMs and S-3s, maneuver enhancement brigade CDRs, CSMs, and S-3s, sustainment brigade CDRs, CSMs and SPOs, BSB CDRs and SPOs; FSC CDRs, HHC CDRs, spt plt leaders, medical company CDRs, battlefield contractor POCs, and the recorder.	Rehearsal facilitator. Timeline manager.
2. DEPUTY CDR	Opening remarks.	Provides commander's guidance for sustainment rehearsal.	
3. Corps G-3	Provides overview of the terrain model/states the task organization, the friendly situation, the mission, the operational concept, and the commander's intent.	The terrain overview includes: Theater/corps/division boundaries, and friendly force locations (in AAs and ATK POS).	Responsible for terrain model set up and for coordination with corps G4 on sustainment terrain model control measures.
4. Corps G-2	Provides an enemy situation overview.	Focuses on enemy logistic threats (i.e., along MSRs, to corps rear area; impacts of refugees, civilians, and terrorists). Includes chemical threat.	Displays enemy symbols on the terrain model.
5. Corps G-4	Provides a logistic overview.	Includes corps and division support unit locations, MSRs (primary and alternate) corps support infrastructure.	The G4 provides a snapshot of paragraph 4a (concept of sustainment) of the corps' order.
6. Corps G-1	Provides corps personnel status by unit.	Includes critical MOS shortages and replacements.	
7. TSC SPO & Corps SURGEON	Covers all DS actions BEFORE phase I.	Includes task organization for support, location of DS and GS sustainment units in each LSA, status of O/H stocks, and protection of sustainment assets. Includes the location of all corps medical assets in corps AO and the location of hospitals.	
8. TSC MMC	Covers critical MAFFMS locations and considerations.	Discusses corps critical stock status and stockage objectives. Includes sustainment flights, ASP, ATP, POL, and Class IV corps supply points.	
9. TSC MCB	Covers corps movement personnel and transportation/ movement mission command locations.	Includes corps transportation assets/HET support, and HN support status.	
10. Corps G-3	Covers the operational concept by phase, beginning with phase I.	Sets the stage for the rehearsal by reading when each phase begins and ends.	Turns it over to next briefer.

11. ACR, CAB, FIRES BDE, MEB, Division 1, DIV 2, DIV 3, SIG, and MI	Division/ACR G-3s cover phase I maneuver actions, while G4s cover phase I division-level logistics.	The key to these briefings is ensuring the corps' subordinate units (divisions/ACRs) are synchronized with the corps support plan. G4s brief division sustainment asset, to include DSA location and actions.	Note: Division ADC(S) may bring a deputy G-3 to brief the divisions' actions during a particular phase.
12. TSC SPO	Covers TSC actions during phase I.	Focuses on GS/DS support during phase I of the sustainment BDE (Fs) and rear. Specific actions include support priorities, support (by unit), supply priority and movement forward and rearward, the location of LSAs, DIV spt areas, DIV ASPs, ATP and POL sites in DIV spt areas. Lastly, discusses critical MAFFMS issues.	Includes any other specific sustainment area, as required by deputy corps commander, such as current combat power status and status of corps sustainment stocks.
13. Corps SURGEON	Covers corps medical concept of sustainment for phase I.	Focuses on evacuation asset and CSH locations.	
14. Corps G-3	Covers actions during phases II- IV.	Reads when each phase begins and ends.	
15. ACR, CAB, FIRES BDE, MEB, DIV 1, DIV 2, DIV 3, SIG, and MI BDE	Covers actions in each phase. Refer to sequence #11.	Refer to sequence #11.	
16. Corps TCF, Provost Marshal, and Reserve	Covers actions during phases II-IV and in the corps rear area.		
17. TSC SPO	Covers actions during phases II-IV, refer to sequence #13.	Refer to sequence #13.	
18. Corps SURGEON	Covers actions during phases II-IV, refer to sequence #14.	Refer to sequence #14.	
19. Corps MMC	Covers critical MAFFMS considerations during phases II-IV, refer to sequence #8.	Refer to sequence #8.	
20. Corps MCB	Covers critical transportation considerations during phases II-IV; refer to sequence #9.	Refer to sequence #9.	
21. Corps G4	Has scribe review support issues, and then concludes rehearsal.	Tasks respective units.	

Figure I-9. Corps Sustainment Rehearsal Agenda.

APPENDIX J

SUSTAINMENT UNIT TERRAIN REQUIREMENTS

Terrain Requirements of Representative Sustainment Units

Unit	*Space*
GS Ammunition Company (MOADS)	(CSA) 5,000 x 8,000 m
DA Ammunition Company (MOADS) (ASP)	2,000 x 3,600 m
DA Ammunition Company (MOADS) (ATP)	1,000 x 1,000 m
Petroleum Supply Company	1,600 x 900 m
Mortuary Affairs Company	700 x 400 m
Repair Parts Supply Company	500 x 1,000 m
Heavy Material Supply Company	1,500 x 1,500 m
Maintenance Company (BSB)	500 x 500 m
Distribution Company (BSB)	500 x 500 m
FSMC	500 x 500 m
Non-Division Maintenance Company	1,000 x 1,000 m
Transportation Heavy Truck Company	700 x 700 m
Transportation Medical Truck Company	500 x 500 m
Transportation Light Truck Company	300 x 300 m
Transportation Light/Medium Truck Company	400 X 400 m
Trailer Transfer Patient Team	100 x 100 m
Aviation Support Battalion	1,500 x 1,500 m
CSH	400 x 400 m
BSA (with BSB and unit trains, etc.)	4,000 x 7,000 m
Division LSA (sustaining brigade)	7,000 x 10,000 m

NOTE: Terrain requirement pulled from applicable FMs and TMs.

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APPENDIX K

SUSTAINMENT PREPARATION OF THE OPERATIONAL ENVIRONMENT PLANNING PROCESS TOOL FOR OPERATIONAL SUSTAINMENT ASSESSMENT (Previously known as Logistics Preparation of the Theater-LPT)

NOTE TO READER: The purpose of this appendix is to bridge a gap in Army and joint doctrine to provide campaign planners with a process to gather theater-level information about a country and/or an area of operations (AO). The process tool described herein assists the sustainment planner in identifying gaps in capabilities and/or resources available either in country (i.e., potential host nation support), and/or surrounding countries within the AO. This process tool will assist the operational-level sustainment planner in understanding and visualizing the theater prior to the receipt of the mission. It is consistent with best practices and principles for developing an initial assessment, and follow-on estimates as described in Army field manuals (FM) and joint publications (JP). It was provided to CASCOM and CADD for inclusion in ATTPs and ADRPs as part of Doctrine 2015, and in its current form is not a substitute for doctrine—it is an "informed practice," as described. In April 2012, it was provided as an 'initial assessment planning tool' to COCOM J-4 staffs. Their comments were integrated into the revision of this process tool.

K-1. GENERAL

This appendix contains guidelines and a quick-reference process for conducting sustainment preparation of the operational environment (previously known as logistics preparation of the theater [LPT]) assessment (i.e., data collection, categorization, and analysis). The LPT concept was first published in Army doctrine in the 1993 revision of FM 100-5. At that time, LPT was defined as a continuous and iterative process logistics planners use to assess and analyze the situation from a logistics perspective. The data collected would be continuously reviewed, refined, updated, and used to develop a logistic estimate once a mission had been designated. This concept was further developed and published in a student text as a "mission analysis process for operational-level logistics planners" in 1995-1996 within the Department of Logistics and Resource Operations, US Army Command and General Staff College. This process has since been updated with changes from JP 4-0[17] and ADRP 4-0.[18] The author has read the content update in each of these doctrinal publications, and has extrapolated and/or expanded it into a simplified assessment tool for sustainment planners. This assessment process tool may not be all inclusive, since each *decisive action* (previously known as full-spectrum operation) is unique and may require different sustainment planning considerations or data collection categories or files, as detailed in the paragraphs that follow.

As described in ADRP 4-0, sustainment preparation of the operational environment is the "analysis to determine infrastructure, environmental, and resources in the operational environment that will optimize or adversely impact friendly forces means for supporting and sustaining the commander's operations plan." This doctrinal manual stresses that a thorough assessment will assist logisticians (i.e., sustainment planners) in developing the most effective method of providing flexible and responsive support. As in the original manuals published in 1995, there were six factors published and associated with this data collection, categorization of this data, and analysis process. These six factors were and still are: geography, supplies and services, facilities, transportation, maintenance, and general skills. The current

[17] US Joint Chiefs of Staff. JP 4-0, *Joint Logistics* (Washington, DC: JCS, 18 July 2008).
[18] ADRP 4-0, *Sustainment* (Washington, DC: HQDA, 31 July 2012).

field manual also states that these six factors ARE NOT all-inclusive. At this point, it is important to understand the linkage between sustainment as a joint function and as an Army warfighting function.

JP 4-0, *Joint Logistics*, and the JP 4-x series of joint publications provide a doctrinal framework (i.e., guidelines) on joint logistics planning and execution across a range of military operations. JP 4-0 also introduces a new term – the "joint logistics environment (JLE)."[19] As described, JLE "consists of the conditions, circumstances and influences that affect the employment of logistic capabilities…and includes the full-range of logistic capabilities, stakeholders, and end-to-end processes." Figure I-1 in JP 4-0 provides the graphic overview of the *JLE Operating Framework*, and Figure I-3 provides a graphic overview of the seven joint *Core Logistic Capabilities*. After having read both ADRP 4-0, and JP 4-0, the author interprets both sustainment preparation of the environment and JLE as similar concepts and ideas that support sustainment-logistic assessment. However, these two new concepts and ideas have not been combined and published in a standard process to conduct a sustainment assessment. The intent of the process published in this text is to provide an "initial" sustainment assessment tool (i.e., a tool in checklist format) for a command to execute prior to developing their sustainment estimate for a designated operation or specific mission. As an operational-level sustainment planner (i.e., COCOM, CFLCC C4, JFLCC J-4, TSC/ESC-level G-4, or the sustainment BDE S-4), you may be tasked to look at a specific country within the COCOM's area of responsibility (AOR). Military forces may be deployed into this country or AOR to conduct operations (i.e., from major combat operations – offense or defense through stability and security assistance operations) in the future. You and your staff would have been tasked to conduct an initial assessment of this country or AOR from a sustainment perspective. The sustainment topics against which you and your staff would assess this country or AOR are listed in paragraph K-6. Finally, although JP 5-0, *Joint Operation Planning,* provides a doctrinal overview of planning activities for joint, interagency, and multinational operations; it DOES NOT provide an assessment process tool for sustainment planners.

This proposed assessment process tool, published within this text, has been reworked, refined, and updated several times since CY2005. This process tool has been expanded to 15 data collection categories that align with the current definition of the "operational environment," as understood from reading JP 4-0 and ADRP 4-0. This process provides some key sustainment and operational environment planning hints that directly or indirectly affect supporting a future operation. This assessment checklist is a starting point for sustainment planning for all types of operations (i.e., joint, interagency, and multinational). In addition, based on Executive Agent and Title 10 responsibilities (to include common user logistics [CUL] functions and responsibilities) across the US Armed Forces and DOD, much of operational planner's initial assessments and considerations for sustainment of forces are "joint" in nature. The sustainment planner should work through this data collection and assessment process while remaining focused on "infrastructure, environmental, and resources" within a country or AOR. These planners are looking to identify gaps in capabilities and/or resources available in country (i.e., potential host nation support), and surrounding countries within the AOR. Part of this process is also identifying and cataloging the capabilities of nongovernmental organizations (NGO), other governmental agencies (OGA), and intergovernmental organizations (IGO) that are currently operating in-country. Those unique sustainment and support requirements that specifically apply to sister services, other DOD agencies, US Governmental organizations (i.e., DOS, USAID, etc.), and multinational partners are not specifically addressed in this student text.

K-2. SUSTAINMENT PREPARATION OF THE OPERATIONAL ENVIRONMENT

This sustainment focused process tool is comparable to, but not to be confused with the intelligence collecting and analysis process that is found in FM 2-01.3, *Intelligence Preparation of the Battlefield/Battlespace*.[20] This sustainment assessment process, primarily initiated with open-source

[19] US Joint Chiefs of Staff, JP 4-0, *Joint Logistics* (Washington, DC: JCS, 18 July 2008), chapter 1, I-4.
[20] US Department of the Army, FM 2-01.3, *Intelligence Preparation of the Battlefield/Battlespace* (Washington, DC: HQDA, 15 October 2009 [with Change 2, dated 8 December 2010]).

documents, could be executed in parallel with military IPB and utilizes much of the same data collected by the C-2, J-2, or G-2. Although the intelligence staff element places emphasis on the enemy, the sustainment planner will take much of the same data (collected by the C-2, J-2, or G-2) and reframe the importance of it by categorizing and analyzing it from a sustainment perspective. These sustainment relevant data files may take the physical form of actual file folders or may be collated into computer database files. Follow-on actions from this sustainment assessment may include identifying a requirement for (but are not limited to): preparing intermediate staging bases (ISB); selecting and improving lines of communication (LOC); projecting and preparing forward operating bases (FOB); forecasting and building operational stock assets forward and/or afloat; and/or initiating talks with a foreign country's leadership that result in future "sustainment and support" agreements. Weather and terrain databases in the IPB, with its overlays, can provide excellent information that is used to preselect lines of communication (LOC) and sites for sustainment headquarters and facilities. The IPB event analysis matrix and template can also be used to determine the need for route improvements and bridge reinforcements. The key point is that sustainment planners cannot afford to wait until maneuver units deploy to begin their initial assessments of a future country or AOR. Once this assessment is completed, the data may be stored until needed. When a potential military mission has been identified, sustainment planners would update and/or confirm the data previously assessed, and use the current information to initiate sustainment estimates to support OPLANs, and follow-on development of comprehensive operational sustainment annexes to support OPORDs. The relative priority this assessment process receives will depend on the overall concept of operation, resource availability (i.e., time and planning personnel), and other command priorities.

Figure K-1 shows a simplified sustainment preparation of the operational environment (previously known as logistics preparation of the theater) planning process.

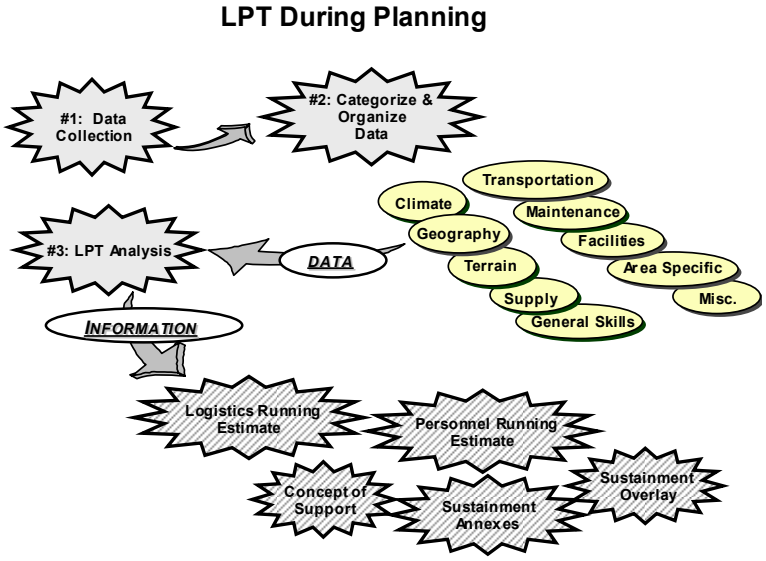

Figure K-1. Sustainment Preparation of the Operational Environment During Planning.

To further define the six factors published in ADRP 4-0 and associated with this data collection, categorization of this data into files, and analysis of this data (also known as an assessment process), a basic definition for each category is provided below.

- *Geography*. Collect information on annual climate, terrain (include geospacial imagery), and light data in the AO. Use this information to determine types of equipment needed and when they are needed. Use water information to determine the need for such things as early deployment of well-digging assets and water production and distribution units, location of ground water and drainage or run-off areas, etc.

- *Supplies and Services*. Collect information on supply items and services that are readily available in the AO that can be used to support US forces. The most common supplies and services are subsistence items (CL I), bulk petroleum (CL IIIB), barrier materials (CL IV), laundry and bath, sanitation, water purification, and power generation.
- *Facilities*. Collect information on such things as warehousing, cold storage facilities, facilities production and manufacturing plants, reservoirs, administrative facilities, sanitation capabilities, and hotels. Fixed facility availability could reduce the requirement for deployment and/or construction of temporary facilities to support the operation.
- *Transportation.* Collect information on highways, roads, and rail nets, truck availability, bridges, ports, cargo handlers (longshoremen), canals and waterways, petroleum pipelines and storage facilities, and materials handling equipment (MHE). Information on traffic flow, chokepoints, and control problems is also important.
- *Maintenance.* Collect information on contract maintenance facilities that could support US or coalition equipment. Can the supported country or partner's armed forces supplement our capability? Is there commonality or standardization in equipment and repair parts? What is the internal capacity for fabricating repair parts?
- *General Skills.* Collect information on the supported country's general population and labor force resources in particular. What is the national or common language? Are interpreters and/or translators available? What is the potential size of the labor pool? What useful skills are available? For instance, will drivers, clerks, MHE operators, food service personnel, guards, mechanics, and longshoremen be available?

Additional categories, introduced in paragraph B-6, that should be included in this initial assessment process for ***sustainment*** are (but are not limited to): combat health support; personnel service support; field services and sanitation; special operations forces (SOF) support; operations support (joint and multinational); mission command; government; training; and "other" factors.

Once the theater of operations is confirmed for this initial assessment, planners begin to build their sustainment database by identifying and contacting all potential sources of intelligence data for the country or region. There are also many open-source relevant information collection sources, both governmental and commercial, that also collect, collate, and store like data on a routine basis. The information these sources store on the World Wide Web, to include published reports, can assist the sustainment planner in building their initial assessment database with some of the most current data. Although some information may be suspect, it is a starting point for the sustainment planner to further research and validate the information collected by this assessment process. The US Department of State, with its worldwide embassies and military attaché offices, is an excellent source of detailed information on any particular country. Embassy staffs routinely do country studies that, when current, can provide detailed information on political and economic issues. If US Army Civil Affairs (CA) units or other SOF elements either are in country or have been targeted on a specific country, a wealth of intelligence information will be available to review during the sustainment assessment. These units have functional specialists who focus on particular areas such as civilian supply, public health, public safety, and transportation. These personnel can also provide vital assistance when coordinating theater contract support for military forces, and coordinating support efforts with NGOs, OGAs, and/or IGOs that are currently operating in country.

Additional Web-based open-sources of information are CultureGrams™ through ProQuest LLC and Brigham Young University; country studies and profiles produced by the Federal Research Division, U.S. Library of Congress; country studies and area handbook series sponsored by the U.S. Department of the Army between 1986 and 1998; *The World Factbook(s)* published by the Central Intelligence Agency (CIA); and country profiles produced by the United Nations Statistics Division.

K-3. DEVELOPING SUPPORT REQUIREMENTS

One of the primary tasks in a new theater of operations is developing support requirements and selecting an area(s) for sustainment base(s) development. Sustainment planners can use the results from this initial assessment process as a basis for negotiating host nation support and theater support contracting agreements to tentatively receive approval for future sustainment bases. Criteria used to tentatively identify sustainment and support base locations incorporate the following planning considerations (at a minimum):

Defensibility and vulnerability. The area(s) must be defensible. Defensibility depends on the distance from enemy offensive or irregular threats means, defensive means available in the area, peculiarity of location, proximity to friendly combat forces, and the civilian population's attitude towards friendly forces. The enemy offensive capability determines vulnerability, which usually diminishes as the distance from enemy forces increases.

Space for dispersion. It is desirable to provide sufficient usable space to permit adequate dispersion of installations and/or support areas (i.e., FOBs, ISBs, LSAs, etc). Supported forces' nature and strength dictate the optimum number of installations required. In addition, the enemy's nuclear or chemical (i.e., chemical, biological, radiological, nuclear, and high-yield explosives [CBRNE]) delivery capabilities also determine the area the installations require.

LOCs. A line of communication (LOC) consists of the route (land, water, and/or air) that connects an operational or tactical force with a sustainment base along which supplies and reinforcements move. The theater commander is vitally concerned with the LOCs both leading to and within a theater. Adequate transportation, security, sustainment engineering of road networks, and construction support for the intratheater LOC are necessary.

Terminal facilities, beaches, and sea approaches. Transoceanic shipment (sea and air) is the principal means of access to most theaters of operation. Close examination of potential sustainment bases for sea terminal facilities, usable beaches, and sea approaches is necessary. Navigational hazards constricting offshore maneuver, coupled with an enemy anti-surface capability, may make an otherwise ideal location unusable. Adequate air terminal facilities, and secure air approach routes, are also desirable and often critical to mission accomplishment.

Transportation network. An adequate road and rail network is desirable within the AO and connecting countries within the AOR. An area that has poor roads but requires little engineering effort for road relocation and extension may be preferable to one with an extensive road network that is poorly located for military use. Use of in-country rail systems for selected military vehicle and cargo movement can reduce some of the sustainment engineering requirements of the road networks.

Local supplies. The host nation civilian population's requirements influence local resource availability for incoming forces. When local supply resources can be procured to support incoming military forces, fewer bulk supplies must be shipped in from outside the country or AO. Ideally, a sustainment planner and/or contracting agent should focus at minimum on procuring bulk fuels, lumber, textiles, common tools, and light machinery. Also, in the event bulk water sources are not readily available for purification through organic reverse osmosis water purification unit (ROWPU) equipment, procurement of potable and/or bottled water may also be required. In most cases, locally procured food items will require approval by a preventive medicine specialist accompanying military forces.

Construction requirements. Construction is costly in personnel, equipment, material, and time; therefore, a careful study of future operating base construction requirements is critical. Construction requirements are substantially reduced when one or more of the following facilities are available in the AO to contract for lease:

- Water and air terminals.

- Roads, railroads, and pipelines.
- Open, covered, and/or refrigerated storage facilities.
- Maintenance shops and power installations.
- Hospitals and local medical clinics.
- Administration buildings and facilities.
- Communication facilities.

Local labor. An adequate local labor population greatly reduces military manpower requirements in the AO. General and semi-skilled labor (truck drivers, mechanics, machinists, clerks, medical personnel, and interpreters), though especially desired, should not be employed to the extent that the local economy becomes paralyzed. The planning factors, support agreements, and types and uses of host nation support (HNS) for rear operations, CS, and sustainment must be established.

Other considerations. Additional factors that influence developing support requirements and selecting support locations include:

- Degree of permanency anticipated for the base.
- Estimated troop population during successive theater development stages.
- Supported forces' geographic locations.
- Topographic, hydrographic, or climatic peculiarities of the area.
- Support requirements for multinational partners (i.e., military forces, government agencies, or civilian organizations).
- Medical vaccinations required prior to deployment in the foreign operational area.
- Host nations' restrictions (legal, cultural considerations, etc.)

K-4. PLANNING CONSIDERATIONS THAT AFFECT SUSTAINMENT SUPPORT

Before the sustainment planning staff executes this assessment process, they should be thoroughly familiar with the following (if available, and at a minimum)—

Higher headquarters:

— Mission (means, ways, and end state).
— Commander's guidance and/or intent.
— Concept of operations, current TPFDD, etc.
— Published sustainment annexes, support concepts, etc.
— Specified, implied, and essential tasks.
— Estimated duration of operations.
— Type of forces, number of troops, etc.
— Directed command and/or support relationships .
— Planned COMMZ, AO or area of interest, theater AO, and/or theater of war.
— Planning timeline (pre-deployment, RSOI, operation/mission execution, and redeployment).

Type of operation:

— US Army only.
— Joint, interagency, intergovernmental, and/or multinational (JIIM).
— Combined (coalition, alliance, lead nation, partnership, etc.).
— Military forces in UN and/or NATO operations.

- Military forces with other governmental (intra or inter-) agencies.
- Military forces with non-governmental organizations (NGO).
- Military forces with regional or international organizations.
- Offense, defense, and/or stability operations.
- Civil support operations (CSO).
- Other operations (counterinsurgency, humanitarian relief, security assistance, etc.).

Existing and/or planned:

- Executive Agent and/or Title 10 responsibilities.
- Inter-service support agreements (ISSA).
- Acquisition and cross-servicing agreements (ACSA).
- Intra and/or intergovernmental agency agreements (MOA/MOU) (US).
- National agreements, i.e., NATO agreements, standardization agreements (STANAGs), the Status of Forces Agreement (SOFA), etc.
- Host nation support (HNS) agreements.
- International law (i.e., limitations, constraints, restraints).

Mission responsibilities of:

- Strategic sustainment commands or agencies (USTRANSCOM, USAMC, DLA, GSA, etc.).
- Combatant commands (COCOM)/commanders (supported).
- Theater sustainment command (TSC)/Army sustainment command (ASC)/expeditionary sustainment commands (ESC) (supporting).
- Sustainment brigades (SB)/Army field support brigades (AFSB)/contracting support brigades (CSB).

Sources of intelligence data to be used in a sustainment assessment:

- Unit-level mission variables (aka METT-TC).
- Unit-level operational variables (aka PMESII-PT).
- Division or higher intelligence preparation of the battlefield (IPB).
- Corps HQ battlefield area analysis.
- SOF general area studies to include US Army civil affairs (CA)/ psychological operations (PSYOP) unit area studies.
- US military senior staff officers (DA, Deputy Chief of Staff for Operations and Plans [DCSOPS], JCS, etc.).
- USTRANSCOM transportation intelligence file.
- Armed Forces Medical Intelligence Center (AFMIC).
- Joint Universal Lessons Learned System (JULLS) database.
- Universal Joint Task List (UJTL) database.
- Local/regional NGOs.
- US Government agencies and departments:
    - Department of State/US embassies (i.e., country teams, etc.).
    - Central Intelligence Agency (CIA).
    - Defense Information System Agency (DISA).
    - Defense Intelligence Agency (DIA).
    - National Geospatial-Intelligence Agency (NGIA).
    - Defense Security Cooperation Agency (DSCA).
    - National Security Agency-Central Security Service (NSA-CSS).
    - Individual Armed Forces intelligence agencies.
    - Department of Homeland Security (DHS).
    - Other.

K-5. PLANNING STAFF BRIEF PRIOR TO CONDUCTING THE SUSTAINMENT ASSESSMENT

Assuming time and resources are available, have the staff elements listed below brief the entire sustainment planning staff (or, at a minimum, key individuals) on the topics and information that follow. This information affects all categorized sustainment data files during their development and analysis.

NOTE: J-staff descriptions are used only to stipulate a function and not so much the specific staff office or officer in a theater-level or higher staff that presents this information to the remainder of the staff.

Data Collector/Analyzer	Sustainment Data File
J-3/J-4	1. Higher HQs mission. 2. Higher HQs intent. 3. Concept of the operation. 4. Operational limitations, restraints, and/or constraints. 5. Specified, implied, and essential tasks.
J-2	6. Evaluate and brief the threat. a. Facts (unit capabilities, designations, etc.) — Airborne, air assault operations, etc. — Unit locations. — Terrorism, sabotage, etc. — Other. b. Assumptions. c. Conclusion, issues, or impact on operations. d. Recommendations.
J-5 (CA/PSYOPS officers)	7. CA area study and assessment. a. Facts. —Geography (water sources, etc.). —Government and politics. —People (population, culture, etc.). —Public administration, education, health, etc. —HNS. —Other. b. Assumptions. c. Conclusions, issues, or impact on operations. d. Recommendations.
J-5 (CA/PSYOPS officers)	8. Basic psychological operations study. (If available, it may supplement and/or replace a civil affairs area study.) a. Facts. — History and ideology. — Government and politics. — Society and culture. — Potential target audience. — Other. b. Assumptions. c. Conclusions/issues/impact on operations. d. Recommendations.

**Other J-staff officers may be tasked to provide initial planning information based on mission requirements or subject expertise in selected areas described above.

K-6. EXECUTING THE SUSTAINMENT ASSESSMENT

After having been briefed on the information in paragraph K-5, the appropriate staff elements can initiate development of their designated sustainment data files and start their analysis of the data collected. The J-2, and the country team or the defense attaché, may be the initial sources for data in many of the categories listed below. The next step after completing their analysis, for each of the fifteen categories listed below, would be to develop, "Conclusions, Impact on Sustainment Operations, and Sustainment Challenges and Risk Mitigation"; this would complete the assessment process. A short definition for these three terms follows:

1. *Conclusions* – Based on your analysis of the data collected, what are the key findings you derived from your analysis? What issues, constraints, and/or restraints did you identify related to future sustainment operations? Are there any assumptions you need to make at this point that are necessary to work through your assessment process?

2. *Impact on Sustainment Operations* – Based on your "conclusions," what is/are the potential impact(s) on planning for and/or executing future sustainment operations? Do you need to validate your assumptions at this time?

3. *Sustainment Challenges and Risk Mitigation* – Based on the potential "impacts" identified, how would you overcome these challenges? How will you mitigate the risks identified?

The following "sustainment data file" topics (bolded letters) are the fifteen categories to collect data under and start your assessment process:

Data Collector/Analyzer	**Sustainment Data File**
J-2 (J-4)	1. **Geography.** Country/AO assessment oriented to sustainment requirements (facts/assumptions). — Location (continent, bordering countries) — Physical characteristics/terrain analysis (surface features, topography, rivers and lakes, vegetation, agricultural, deserts, shorelines, cliffs, etc.). — Annual climate/weather profile (temps, rainfall, light data, seasonal variations, droughts, floods, etc.).
J-4	2. **Supplies.** (*Field Services are under their own category) Country/AO assessment (facts/assumptions). — Subsistence items [Classes I, VI, and water]. — Bulk petroleum [Class III(b)] and lubrication products. — Repair parts (Class IX; ground and air). — Bulk ammunition (Class V). — Barrier materials (Classes II and IV). — Major end items (Class VII). (*Q: Are any of these commodities available within the host nation or bordering countries?)

Data Collector/Analyzer	Sustainment Data File (continued)
J-4 (special staff officers)	3. **Facilities** (minus maintenance). Country/AO assessments (facts/assumptions). — Civil engineering support plan (if available). — Warehousing (cold and/or bulk storage, etc.) — Outdoor storage: bunkers for CL V, marshalling areas for vehicles, hazardous materials, etc. — Utilities/power generation (electric, gas, water, etc) — Bulk fuel storage, pipelines, etc. — Water reservoirs, bulk water storage, etc. — Administrative (billeting, hotels**,** etc.). — Sustainment engineering requirements. — Base Camp development. — Base camp construction. — Prime RIBS/Prime BEEF/Naval construction battalions. — Use of Force provider sets.
J-4 (J-3)	4. **Transportation.** Country/AO assessment (facts/assumptions). — Road/rail/waterway networks. — Airfield/seaport availability. — Transportation (truck, bus, etc.) availability. — MHE/container-handling equipment (CHE) requirements. — Sustainment engineering requirements. — Movement control requirements. — Inter/intra-theater lift requirements.
J-4	5. **Maintenance.** Country/AO assessment (facts/assumptions). — Field maintenance capabilities. — Facilities: Maintenance bays and CL IX warehousing — Recovery, evacuation, and collection. — Depot repair capabilities. — Test equipment calibration and repairs. — Contracted support (HNS, TCN, and LOGCAP).
J-5 (special staff officers)	6. **General Skills/Labor resources**. Country/AO assessment (facts/assumptions). — General labor (office admin, cleaning, sanitation, etc.). — Skilled labor (interpreter/translator, equipment operators, food services, dock workers, airport operators, equipment repair, etc.). — Contracted support (HNS, TCN, and LOGCAP).

Data Collector/Analyzer	Sustainment Data File (continued)
Surgeon (MEDO planners)	7. **Combat health support (CHS).** Country/AO assessment (facts or assumptions). — Facilities (hospitals, clinics, and supply storage). — Civilian medical personnel (skilled labor). — Medical supply support (Class VIII). — Treatment and evacuation support. — Medical equipment repair support. — Preventive medicine support. — Specific medical HNS within AOR. — Endemic diseases/local health hazards.
J-1 (Chaplain, SJA, J8)	8. **Personnel service support (PSS).** Country/AO assessment (facts or assumptions). — Facilities (administrative). — Personnel information management. — Religious support team. — Legal service support (internal). — Finance service support (internal). — Public affairs support. — Postal operations management. — Enemy prisoner of war and refugee support. — MWR and community support. — Personnel policies and procedures.
J-4/Surgeon	9. **Field Services and sanitation.** Country/AO assessment (facts/assumptions). *a. Field Services* — Facilities (to support field service functions). — Shower/bath/laundry. — Clothing and light textile repair. — Aerial delivery (airdrop/rigging/equipment repair). — Mortuary affairs. *b. Field Sanitation* — Refuse disposal, liquid and solid waste disposal. — Latrine facilities.
J-3/J-4 (special staff officers)	10. **SOF support.** Country/AO assessment (facts/assumptions). — (See categories 1 through 9 above as they apply to SOF forces requirements.) — SOF-peculiar requirements.

Data Collector/Analyzer	Sustainment Data File (continued)
J-3/J-4 (special staff officers)	11. **Operations Support.** Country/AO assessment (facts/assumptions). *a. Joint considerations:* — Service-specific responsibilities. — Interservice support agreements (ISSAs). — Joint logistical center/office/board requirements. — Liaison officer requirements. *b. Multinational considerations:* — National agreements/support responsibilities. — Legal implications (international/national/ Local, etc.) (external). — Coalition, alliance, and/or partnership. — Logistical interoperability (i.e., doctrine, mobility, equipment, etc.). — Liaison officer requirements. — Military demographics (to include HN).
J-Special staff officers	12. **Mission Command.** AO/mission assessment (facts/assumptions). *a. Command and Control* — Equipment (tactical telephones - tactical FM, tactical satellite, etc.). — Frequency assignments/communication nets. — Command and support relationships, including NGOs and contractors. — Interoperability (joint/combined, etc.). — Theater policies and procedures. *b. Communication Demographics (Commercial)* — Telephones/cell phone system. — Radio and TV networks. — Newspapers (local/regional). — Internet capabilities.
J-2/SJA/Chaplain	13. **Government.** AO/mission assessment (facts/assumptions). *a. Political issues* — Leadership overview. — Government system and goals. — Government effectiveness and legitimacy. — Government response to our mission. — Foreign relations. *b. Legal support issues* — Local/regional/national laws. — HNS agreements (with US Government). — International and operational laws. — Contract and fiscal laws. — Judicial system. *c. Social Demographics* — Major population centers. — Ethnic and/or tribal. — Religion. — Education/Literacy. — Languages.

Data Collector/Analyzer	Sustainment Data File (continued)
J-3/J-4	14. **Training.** AO/mission assessment (facts/assumptions). — Leader/staff development. — Combat/basic soldier skills. — Mission-essential task list train-up. — Predeployment training. — Country-specific tasks (i.e., laws, customs, etc.). — In-country training areas.
J-4 (special staff officers)	15. **Other.** Depending on the mission and resources available, these are other sustainment planning considerations that may enter into this assessment process as either separate data files or collated under "other." *a. Support of—* — US Government Organizations (DOS, USAID, etc.) and Non-DOD Agencies (CIA, FBI, etc.) . — Nongovernmental organizations: NGOs — Intergovernmental organizations: IGOs (UN, NATO, etc.) (regional/international). — Transition of support to another agency, organization, and/or government. b. *Types of support operations.* — Split-based operations. — Forward logistics support areas/bases. — Intermediate staging bases (ISB). — Joint Logistics over the Shore (JLOTS). — Use of pre-positioned stocks (equipment/supplies). c. *Force-protection requirements.* — Rules of engagement (ROE). — Base cluster operations. — FSB/ISB/LSA/LOC security. — Military police (MP) support. — Combat logistical patrols (CLP). d. *Operational Contracting Support.* — Military contract personnel (KO, COR, CCT, etc.). — Existing contingency contracting support plans. — Contracted personnel (U.S., TCN, other) — Financial and resource managers (external). — HNS (overall mission requirements). e. *Post conflict and redeployment requirements:* — EPW internment and refugee resettlement. — CMOC/CA programs. — Unit regeneration/reconstitution. — Re-deploy forces to home station or another theater.

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NOTE: If a follow-on sustainment assessment is required to update the information within the data files, follow the same format or process for collecting, categorizing, and analyzing data; integrate this updated information into your sustainment-planning considerations database. Once a specific mission or operation has been designated within the country-AOR you assessed, you can now confirm or validate the sustainment planning considerations and use this information to build support estimates for an OPLAN/OPORD.

K-7. STABILITY OPERATIONS PLANNING

If you become involved in planning support in stability operations, use the same collection and analysis process and sustainment file categories described previously in paragraph K-6. As in all operations, the sustainment planning staff will select to build those data files that specifically apply to their part in the assessment process. This should become even more apparent to the staff after conducting the actions as described in paragraph K-5 above; this planning staff initial brief will set the conditions for data collection by all staff members to support their initial sustainment assessment (facts, assumptions, limitations, AO assessment, conclusions, issues, impact on operations, and recommendations). ADRP 3-07, *Stability Operationsw/C1*,[21] describes an integrated approach to stability operations focused around "five primary Army stability tasks." These are:

- Establish civil security.
- Establish civil control.
- Restore essential services.
- Support to governance.
- Support to economic and infrastructure development.

To further define these terms as listed above and develop a baseline understanding of each, read chapters 2 and 3 within ADRP 3-07. Additionally, read chapters 3 and 4 to develop an understanding of planning for stability in operations. Read corresponding joint publications to broaden your understanding of these topics as needed. To further describe and develop an understanding of some of the unique sustainment planning considerations for these type operations, the author provides you the following information below. This is an extract from a previous, superseded doctrinal manual, i.e., FM 7-98, *Operations in a Low-Intensity Conflict*. It organized and presented planning considerations under related terminology specific to stability operations that the US Armed Forces still conduct today. These are:

Support for insurgencies and counterinsurgencies:

- Lead agency support requirements (US embassy, country team, etc.).
- Supporting US military forces (conventional, SOF, etc.).
- Supporting selected HN counter-insurgent forces.
- Legal implications (rules of engagement, international, etc.).

[21] ADRP 3-07, *Stability Operationsw/C1* (dated 31 Aug 2012).

Combating terrorism (antiterrorism/counterterrorism) (domestic/foreign nation):

- Lead agency support requirements (US Department of State, other US agencies, etc.).
- Supporting US military forces (conventional, SOF, psychological operations, etc.).
- Legal implications (rules of engagement, federal, international, etc.).

Peacekeeping/peace enforcement operations:

- US military force's role (observer, supervisory and assistance, peacekeeping operations forces, etc.).
- Supporting US military forces.
- Supporting UN and/or NATO military forces.
- Legal implications (UN mandates, UN/NATO rules of engagement, letters of instruction, etc.).

Peacetime contingency operations include shows of force, security assistance, arms-control teams, attacks and raids, nation assistance, noncombatant evacuation operations, humanitarian assistance and disaster relief (outside of the United States), and support to counter-drug operations (HN or domestic). Peace enforcement is included in peacekeeping and support to domestic civil authorities but is treated as a separate operation. Additional planning considerations are:

- Lead agency support requirements (DOS, law enforcement, DOD, etc.).
- Evacuation force support requirements (US/joint only, combined, and nonmilitary agencies).
- Supporting arms-control monitoring or enforcement teams (i.e., air, land, and/or sea blockades).
- Types of support operations (ISB, FOB, LOTS, etc.).
- Supporting HN logistical infrastructure.
- Supporting military forces (SOF, MISO, CA, conventional, etc.).
- Legal implications (rules of engagement, HNS, International/Maritime laws, etc.).
- ADP 3-98, *Defense Support to Civil Authorities (DSCA),* July 2012.
- Lead government agency (Federal Emergency Management Agency, US Department of Agriculture, DOD, etc.).
- Military support role (i.e., National Response Plan, NORTHCOM, etc.).
- Type of support operations (forward logistical base, intermediate staging base, etc.).
- Legal implications (Posse Comitatus Act, federalizing forces, government support agreements, etc.).

K-8. COUNTERINSURGENCY PLANNING

FM 3-24, *Counterinsurgency*,[22] describes counterinsurgency or COIN operations as a mix of offensive, defensive, and stability operations conducted along multiple lines of operations. This new manual has dedicated an entire chapter to discuss sustainment in chapter 8, titled, "Sustainment." Some of the sustainment-specific topics addressed in this manual are:

- *Logistic considerations in counterinsurgency,* to include contrasting conventional and COIN operations via METT-TC, logistical preparation of COIN area of operations, and analysis of insurgent logistical capabilities.

- *Logistical support to logical lines of operation (LLO),* to include support to and from operating bases, combat logistical convoys, unit equipment for COIN, aerial distribution, and sustaining host nation security forces.

- *Support to establishing or restoring essential services,* to include assessing essential services requirements, handoff of essential services and public transportation, population movement, and life support to internally displaced persons and refugees.

- *Support to developing better governance,* to include legal support to operations, legal aspects of contracting and claims, and restoration of civil judicial functions.

- *Support to economic development,* which is considered the LLO with the greatest logistical significance.

- *Contracted logistic support,* to include considerations when to use theater support contractors and/or local hires and using contingency contracting officers.

The above list is not all-inclusive, and most of these COIN-specific logical lines of operations address multiple subcategory operations under each. Ensure that you read the entire chapter in FM 3-24 to develop a firm understanding of the unique sustainment planning considerations of these LLOs.

K-9. SECURITY COOPERATION PLANNING

ADRP 3-07, paragraph 3-9 discusses "Security Cooperation"; the following are extracts from this doctrinal manual and identifies potential challenges and issues in planning sustainment. Security Cooperation is all DOD interactions with foreign defense establishments to build defense relationships that promote specific United States (U.S.) security interests, develop allied and friendly military capabilities for self-defense and multinational operations, and provide U.S. forces with peacetime and contingency access to a host nation. Security cooperation aims to promote stability, develop alliances, and gain and maintain access through security relationships that build partner capacities and capabilities.

The Army supports security cooperation through security assistance, security force assistance, foreign internal defense, and security sector reform. The Army often uses Title 10 authorities, which directs training, manning, and equipping of U.S. forces to support security cooperation. Security force assistance (SFA) is integral to successful operations characterized by stability tasks and extends to all security forces: military, police, border forces, and other paramilitary organizations. These forces may be required to operate across a range of military operations; examples are - combating internal threats such as insurgency, subversion, and lawlessness; defending against external threats; or serving as coalition partners in other areas.

[22] US Department of the Army, FM 3-24, *Counterinsurgency* (Washington, DC: HQDA, 15 December 2006).

U.S. SFA military forces normally focus on developing, training, equipping, and advising new host nation forces. Building infrastructure-related capability and capacity such as personnel, logistics, and intelligence is necessary for sustaining the new host nation capacity. This typically includes facilities and materiel but may also include physical plants, information and communication systems, transportation, personnel management processes, and an operational/tactical sustainment infrastructure. These are just a few of the major challenges/issues an operational-level planner will be required to support.

There are three, excellent references that will provide a planner some additional understanding of the SFA missions and tasks. The first is Joint Doctrine Note (JDN) 1-13, "Security Force Assistance," dated 29 April 2013.

This is a 60-page, pre-doctrinal publication that provides common fundamental guidance and is part of the initiation stage of joint doctrine development. This JDN was prepared under the direction of the Director for Joint Force Development, and was designed to supplement approved joint doctrine. It provides details on SFA organizations and their responsibilities, reviews planning considerations for SFA missions/functions/tasks, and information on the many activities (i.e., human rights, employment factors, countering insider threats, etc.) an SFA force may have to plan to support.

The second is a 156-page guide published by the Joint Center for International Security Force Assistance; the guide is titled "Afghan National Security Forces Advisor Guide version 2," dated April 2013 and is FOR OFFICIAL USE ONLY (FOUO). This guide provides perspective and relationships of the SFA structure that exists within the International Security Assistance Force (ISAF) and its subordinate organizations National Training Mission Afghanistan (NTM-A) and the ISAF Joint Command (IJC).

The third and final 111-page handbook was published by the Multi-National Corps (MNC-I) C4 Staff and the Iraqi Assistance Group (IAG) Iraqi Security Force (ISF) Support Operations Cell; the title is "Developing Host Nation Logistics," dated May 2009 and is FOR OFFICIAL USE ONLY. This handbook is a consolidation of experiences and best practices during eighteen-months of their "advise and assist" mission across all security forces at all levels of the host nations sustainment system.

There is not a great deal of information collected and published on how or what to plan for sustainment of SFA missions, i.e. specified tasks. However, if an operational-level planner takes the time to read these three recent references, and analyzes the lessons-learned and best practices from these operations, they will better understand SFA issues and challenges. This will provide sustainment planners the ability to plan for potential IMPLIED sustainment-tasks. As the mission matures, planners will be able to better identify, react to, and plan for actual requirements that directly support their current operation.

K-10. BASELINE PUBLICATIONS THAT SUPPORT THE SUSTAINMENT ASSESSMENT PROCESS

When executing the sustainment assessment process detailed earlier in paragraph K-6, besides reading through each of the data files under the fifteen categories (e.g., Geography = Location, Physical Characteristics / Terrain Analysis, and Annual Climate / Weather Profile), an operational-level planner would ask themselves, "What do I need to further research under each of these categories and their respective data files? What questions should I be asking about these topics?" A "Baseline Tool" that is available to quickly assist planners in critically thinking and working through this is by using all the "Planning Considerations" and "Checklists" that have been published in U.S. Joint, Allied, and Coalition publications. The following are just a few of these publications and what they can provide a sustainment planner:

a. JP 1-0, *Joint Personnel Support* (dated October 2011). Read chapter III, "Joint Personnel Planning," and appendix c, "Joint Force Manpower and Personnel Directorate Checklist."

b. JP 1-06, *Financial Management Support in Joint Operations* (dated March 2012). Read appendix b, "Joint Force Comtroller Checklist," appendix f, "Multinational Considerations for Financial Management," and appendix g, "Interagency Considerations for Financial Management."

c. JP 3-07, *Stability Operations* (dated September 2011). Read chapter II, "Stability Operations Design and Planing," chapter III, "Stability Operations Functions," appendix a, "Assessment Frameworks," appendix b, "Operating with the Whole of Government," and appendix e, "Legal and Fiscal Considerations."

d. JP 3-08, *Interorganizational Coordination During Joint Operations* (dated June 2011). Read chapter II, "Conducting Interorganizational Coordination," and appendices A-G. (These appendices provide detailed descriptions of many of the U.S. and international agencies and organizations with which U.S. military forces may operate and/or to which they may end up providing some level of support.) In particular, pay attention to appendix h, "The Interagency Conflict Assessment Framework." The ICAF is a tool that enables an U.S. interagency team (which may be the lead in some U.S. operations with the military in support) to assess conflict situations systematically and collaboratively. It supports USG interagency planning for conflict prevention, mitigation, and stabilization.

e. JP 3-16, *Multinational Operations* (dated March 2007; the updated version is due in CY2013). Read Chapter III, Planning and Execution Considerations; and Appendix A, Planning Considerations for Multinational Operations; and Appendix C, United Nations and Other Intergovernmental Organizations Considerations.

f. JP 4-0, Joint Logistics (dtd Jul 2008) – read Chapter II, Planning Joint Logistics; and Appendix C, Joint Logistics Boards, Offices, Centers, Cells, and Groups.

g. JP 4-02, Health Service Support (dtd Jul 2012) – read Chapter VI, Joint Health Planning; Appendix D, Medical Logistics Support; and Appendix L, Planning Checklists (six checklists focused on specific aspects of medical support requirements; 65-pages).

h. JP 4-08, Logistics in Support of Multinational Operations (dtd Feb 2013) – read Chapter III, Multinational Logistic Planning; Appendix A, Commander's Checklist for Logistics in Support of Multinational Operations; Appendix C, Relevant Legal Authorities for United States Logistics in Support of Multinational Operations; and Appendix D, United States Contracting Considerations in Multinational Operations.

i. JP 4-10, Operational Contract Support (dtd Oct 2008) – read Appendix E, Contract Support Integration Planning Considerations and Checklist; and Appendix F, Contractor Management Planning Considerations and Checklist.

j. American, British, Canadian, Australian and New Zealand Armies (ABCA) Program "Coalition Logistics Handbook Ed3" (dtd Mar 2011) – read through the entire handbook. There are eleven chapters specifically focused on different aspects of logistics support; many of the chapters include a checklist at the end. Chapter 11 specifcally addresses "*Logistic Planning*" and includes a "*Planning Considerations Checklist*" for coalition logistics.

k. North Atlantic Treaty Organization (NATO) Publications – primarily the Allied Joint Publication (AJP) – 4 series of manuals. These would include doctrinal manuals on "*Joint Logistics, Joint Medical Support, Joint Movement and Transportation, Joint Doctrine for Host Nation Support, and Multinational Joint Logistic Centre*" to name a few topics addressed in detail.

l. Multinational Interoperability Council (MIC) "Coalition Building Guide Ed3" (dated November 2012) - read Vol III.6, "*Logistic Planning Considerations*"; and Vol III.7 "*Common Record of Logistic Reconnaissance for Coalition Partners.*"

To summarize, there are many manuals (i.e., doctrinal, non-doctrinal, handbooks with published lessons learned and best practices). Both U.S. and multinational, military and interagency can provide an operational-level sustainment planning cell baseline guidance on topics to consider in each of the fifteen categories of the sustainment preparation of the operational environment assessment process. The list above is the "tip of the iceberg" in resources available for sustainment planning team members in initially determining "planning considerations" for upcoming missions and operations.

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APPENDIX L

OPERATIONAL CONTRACT SUPPORT TACTICS, TECHNIQUES, AND PROCEDURES [23]

INTRODUCTION

L-1. OCS planning and management is a commander's responsibility. Battle Command Staff Task 71-8-4150, *Coordinate Contracting Support,* recognizes OCS as a common battle command staff requirement performed at battalion level and above. Proficiency in this battlefield function can be a challenge due to a lack of resident knowledge and skills, the myriad of contracting options, and the wide variety of contracting authorities. As discussed in chapter 2, the extensive contracted support requirements during operations in Iraq and Afghanistan caused almost every brigade and above unit to form an ad hoc contract coordination cell in order to plan and manage their OCS requirements. Recognizing the shortfall of these needed skills and positions, the Army approved the creation of the 3C ASI and is currently in the process of documenting 3C ASI positions on unit manning documents.

KEY TACTICAL PLANNING AND EXECUTION RELATED TERMS

L-2. The following terms and associated descriptions are key to understanding OCS tactical planning and execution:

a. ***Requirements determination.*** For the purposes of this ATTP, requirements determination is the process of identifying necessary mission support eligible to be contracted, and the planning and coordination this process involves.

b. ***Requirements development.*** For the purposes of this ATTP, requirements development is the detailed work of preparing and coordinating an "acquisition ready" requirements package that normally includes: a funding document, a justification for the requirement, SOW/PWS (for a service contract) or item description (for a commodity request), IGE, COR/receiving official nomination letter along with a draft quality assurance and surveillance plan (QASP) (for a service contract) and other locally required documents needed for submission of a requirements package. Additionally, requirements development involves the staffing, internal approval, and tracking of the requirements package through contract award and contractor start of work.

c. ***Statement of work.*** A SOW is the portion of a contract developed by the requiring activity describing the actual work to be done by the contractor by means of specifications or other minimum requirements, quantities, performance dates, time and place of performance of services, and quality requirements.

d. ***Performance work statement.*** A PWS is a form of SOW emphasizing measurable performance requirements and quality standards utilizing performance-based language to describe the specifications/requirements. The requiring activity describes its requirements and lets the contractor determine how it will meet them. The contract is based on performance rather than methodology as in a traditional SOW. It is a DOD best practice to use the PWS to the maximum extent practicable when acquiring services. Often times the terms PWS and SOW are used interchangeably. For purposes of this ATTP, the abbreviation SOW/PWS will be used.

[23] Combined Arms Support Command (CASCOM), *Operational Contract Support Tactics, Techniques, and Procedures,* Chapter 4, "Tactical Planning and Execution," (Fort Lee, VA, CASCOM), June 2011, 4-1 to 4-20.This is in the public domain. Approved for public release; distribution is unlimited.

Independent government estimate (IGE). An IGE is a government produced estimate of the cost/price for goods and/or services to be procured by contract. (It is sometimes referred to as an independent government cost estimate, or IGCE.)

WARNING **Contractor personnel should not prepare IGEs.**

e. ***Acquisition review board (ARB).*** ARBs are used to control critical common-user logistic supplies and services within the operational area and to recommend the proper sources of support for approved support requirements. ARBs can be formed by a variety of commands. For example, a joint force command level ARB is called a JARB and a coalition force ARB is called a CARB.

f. ***Contract administration.*** Contract administration is a subset of the contracting process and includes efforts that ensure supplies and services are delivered IAW the conditions and standards expressed in the contract. Contract administration is the process of contract performance oversight, from contract award to contract close-out, by contracting professionals and designated non-contracting personnel (i.e., CORs). The purpose is to ensure contract parties, government and contractor, meet their respective obligations IAW the terms and conditions of the contract. Contract administration for LOGCAP and some large theater support contracts is accomplished utilizing designated DCMA and/ or Army provided ACOs.

g. ***Unauthorized commitment (UAC).*** A UAC is an agreement that is not binding solely because the government representative who made it lacked the authority to enter into that agreement on behalf of the US Government. It is important for Army commanders and staffs to understand that only warranted contracting officers are authorized to enter into contractual agreements or to change existing contracts. Military members can be held financially liable for a UAC depending on the circumstances and conduct of the individual.

WARNING **A commander, the staff, a COR, or any other government official, who is not a warranted contracting officer, must not direct the contractor, whether implicit or implied, to take any action that would change the contract or obligate the government in any situation.**

h. ***Ratification.*** Ratification is the act by an official, who has the authority to do so, of approving an unauthorized commitment. Unless a higher-level official is designated by the agency, the head of contracting authority may ratify any unauthorized commitment if certain conditions are met. Ratification is never automatic; and even when ratification is possible, commanders should take corrective administrative action against the individual(s) having caused the unauthorized commitment.

See paragraph 4-17 for more discussion on unauthorized commitment and ratification.

REQUIRING ACTIVITY AND SUPPORTED UNIT FUNCTIONS

L-3. Army battalions through corps routinely perform requiring activity and/or supported unit functions. Requiring activity responsibilities include planning, requirements package preparation and OCS management (i.e., requirement determination and development; contract and COR tracking; COR nomination and replacement; etc.). In today's operations, nearly all units perform duties as supported units. Specific requiring activity and supported unit functions are described below.

a. ***Requiring activity duties.*** Requiring activity functions begin with the decision that a unit's support requirements (either supply or service) will be fulfilled by contract. All requiring activity functions must be planned for and executed IAW JFC and ARFOR policies and procedures as

well as applicable federal, DOD, Army acquisition regulation and policies. Specific requiring activity responsibilities include:

- Conducting initial planning and market research on available sources of support.
- Developing an "acquisition ready" requirements package to include IGE, initial SOW/PWS, and any letters of justification, draft QASP (for service contract), and other supporting documents, as needed.
- Obtaining local staff, command and funding approval of all requirements packages.
- Nominating qualified CORs and receiving officials.
- Tracking supporting contracts and associated unit CORs.
- Ensuring subordinate units are prepared to provide CORs to assist in providing adequate government oversight of contract execution.
- Participating in and/or providing input to award fee boards and contractor performance assessments.
- Providing support to contractor personnel and their equipment, as directed.
- Integrating contractor personnel into local force protection and security plans.
- Establish and maintain property accountability of equipment purchased, provided or leased via commercial sources for military use.

b. ***Supported unit duties.*** The supported unit is an organization that is the recipient of contractor-provided support. A supported unit may also be the requiring activity, if it initiates the request for support. In many cases, such as with LOGCAP support, the supported unit may not be the requiring activity. In most operations, supported units will be required by their higher headquarters to provide CORs to assist the requiring activity and contracting officer to monitor selected contract support actions. In almost all situations the supported unit plays a role in integrating contractors into local military operations and providing support to designated contractor personnel.

REQUIREMENTS DETERMINATION

L-4. Definition. Requirements determination is the process of identifying necessary mission support eligible to be contracted and the associated planning and coordination this process involves. One of the 3C ASI staff officer's primary functions is integrating the OCS requirements determination process into the tactical planning process.

L-5. OCS and the Military Decision Making Process. FM 5-0, Army Planning and Orders Production, provides a doctrinal approach to decision making to aid commanders and their staffs to examine a situation, reach logical conclusions, and make informed decisions. FM 5-0 describes the military decision making process (MDMP) as an established and proven analytical planning process. It is an adaptation of Army problem solving. Incorporation of OCS in this process ensures the use of contracted support in military operations is considered early in the planning cycle.

a. ***Receipt of mission.*** Upon notification of a receipt of mission, the 3C ASI staff officer should notify the supporting contracting office, LSO and/or ACO representatives of the pending planning to solicit their direct support in this process. Additionally, the 3C ASI staff officer should review pertinent OCS information to include:

- Current OCS policies and guidance including the most current CSIP and CMP information.
- Information on command controlled commodities and services as well as associated dollar thresholds (e.g. ARB/JARB) guidance.
- Current contracts for potential capacity for commodities or services.

Note: *Keep your contract support office and/or TLF personnel (LSO and/or ACO) aware of pending unit planning sessions. While these personnel may not always be able to directly participate in these planning meetings, continue to actively seek their advice and guidance as you go through the planning process.*

b. ***Mission analysis.*** During mission analysis, applicable OCS related restraints, constraints, facts, and assumptions are identified (Figure 3-3) based on information gathered at the receipt of mission. OCS capabilities should be included, as applicable, in the course of action (COA) development, analysis and approval process. Toward the conclusion of mission analysis, the 3C staff officer would coordinate with their supporting contracting organization and TLF representatives to begin analysis of the feasibility of using contracted support for the identified, specified, and implied tasks.

c. ***COA development***. During COA development the 3C staff officer incorporates feasible OCS capabilities into the courses of action designated for COA comparison. Always consider organic support using available forces and the military supply chain as a course of action. Contracted support should not become the default.

d. ***COA analysis***. COA analysis provides the opportunity to evaluate each COA with regards to contract support usage and its limitations (i.e. required delivery date, actual productive contract hours, possible government furnished support requirements, force protection/security issues, level of technical difficulty, surveillance and the ability to monitor contract delivery or performance [i.e., COR requirements]). Other, non-contract, means of support should be identified and analyzed as an alternative to contracted support in the event the contractor defaults. During COA analysis the 3C staff officer ensures COAs comply with JFC and ARFOR OCS policies and guidance. Figure 4-1 lists some key COA evaluation factors.

Course of Action Evaluation Factors

- Estimated cost
- Time to mobilize/execute
- Flexibility, quality, and/or efficiency of support
- Command and control (unity, authority, effectiveness)
- Oversight requirements and resources
- Property accountability and disposal
- Impact on political and strategic objectives (like Iraqi First)

Figure L-1. Potential Course of Action Evaluation Factors.

e. ***COA Comparison. OCS related actions during COA comparison include:***

- 3C ASI along with supporting contracting officer and TLF personnel (if available) provide OCS expertise in determining advantages and disadvantages of each COA.
- ICW resource manager, apply initial contract funding estimates to the COA comparison.

f. ***COA approval.*** The OCS planner's role in COA approval is providing advice to the commander on the feasibility of OCS related tasks or matters identified in the COAs.

g. ***Orders production***. During orders production, appropriate OCS related information is incorporated into the OPORD, FRAGO, annexes, and appendixes by the appropriate staff element. Simultaneous to the orders production is the finalization of the contract support requirements which then can be turned into OCS related OPORD (i.e. new contract) and FRAGO (i.e. change to existing contract).

L-6. Requirements Determination Considerations. Key to effective requirements determination is properly determining which requirements can and should be contracted. Requirements for functions that are inherently governmental cannot be contracted. **Personal services contracts are not normally applicable at the tactical level**. Although requiring activities identify contract eligible requirements, the unit may decide contracted support is not the best option to fulfill the requirement due to METT-TC or other factors. Contracted support also imposes contract management related requirements on a unit that must be considered and incorporated into the unit's planning and execution

a. ***Inherently governmental functions.*** Current military operations have revealed the necessity for contract support, not only in the traditional areas of logistics support, but in other areas as well. Commanders and their 3C staff must understand there are specific duties, responsibilities, and functions that rest solely with military or federal employees that cannot be performed by the private sector. Inherently governmental functions are those so closely related to the public interest they must be performed by soldiers or Department of the Army civilians. Inherently governmental activities that cannot be contracted normally fall into two categories: the exercise of sovereign government authority or the establishment of procedures (e.g., direction of combat operations or supervision of military or Army civilian personnel) and processes related to the oversight of monetary transactions or entitlements (e.g., contract award). AR 715-9, *Contractors Accompanying the Force,* promulgates DOD policy and FAR guidance regarding inherently governmental functions identified in DODI 1100.22, *Guidance for Determining Workforce Mix.* Additional Army policy regarding inherently governmental functions is found in AR 735-5, *Property Accountability Policies*. Secretary of the Army Memo - *Army Policy for Civilian Workforce Management and Services Contracts*, dated 10 July 2009, provides further guidance on this subject to include a related required checklist. Process this form IAW local command guidance.

b. ***Personal services contracts.*** Personal services contracts are contracts that make the contractor personnel appear to be, in effect, government employees. Key indicator of personal services contracts: "relatively continuous supervision and control" of contractor employees by government officials. Personal services contracts require special authorities and approvals and normally do not apply at the tactical level.

WARNING

If there is any doubt as to whether a particular contract support function is inherently governmental or of a personal services nature, consult with your local contracting office and/or your CSB legal section and also check with your supporting SJA!

c. ***Time.*** Time is always a consideration when determining support arrangements. A major challenge is to accurately determine when and to what level the contracted support will be required. Although there is a time lag between the identification of a contract requirement and the delivery of the service or commodity, the same holds true for military support outside the organic capability of the unit. Time lines for contract support can vary from a few hours to many months. For example, a commodity request where there is an existing blanket purchase agreement in place can be processed in very short order depending on JFC/ARFOR staffing and approval guidelines. A contract for a construction related project can take many months between the initial planning and commencement of work. (Note: Commencement of work will not begin until after the

contracting officer issues a notice to proceed (NTP) to the contractor). Factors influencing the time from identification to delivery related to contracted support include:

- Complexity of the contracted requirement (size of force, anticipated duration, number of elements associated to requirement,).
- Availability of current contract with same service or commodity with excess capacity.
- Requirements package development and processing time. Figure 4-2 below graphically depicts the "normal" contract support process time line.
- Requirement for ARB or other board processing.
- Ability to phase in contract support services.

Note: *Getting the acquisition ready requirements package done correctly, so it is approved the first time, is the best way to speed up the contract support process. Also, your* ***requirements package is not "with contracting" until it is approved, funded, and accepted by the contracting office!***

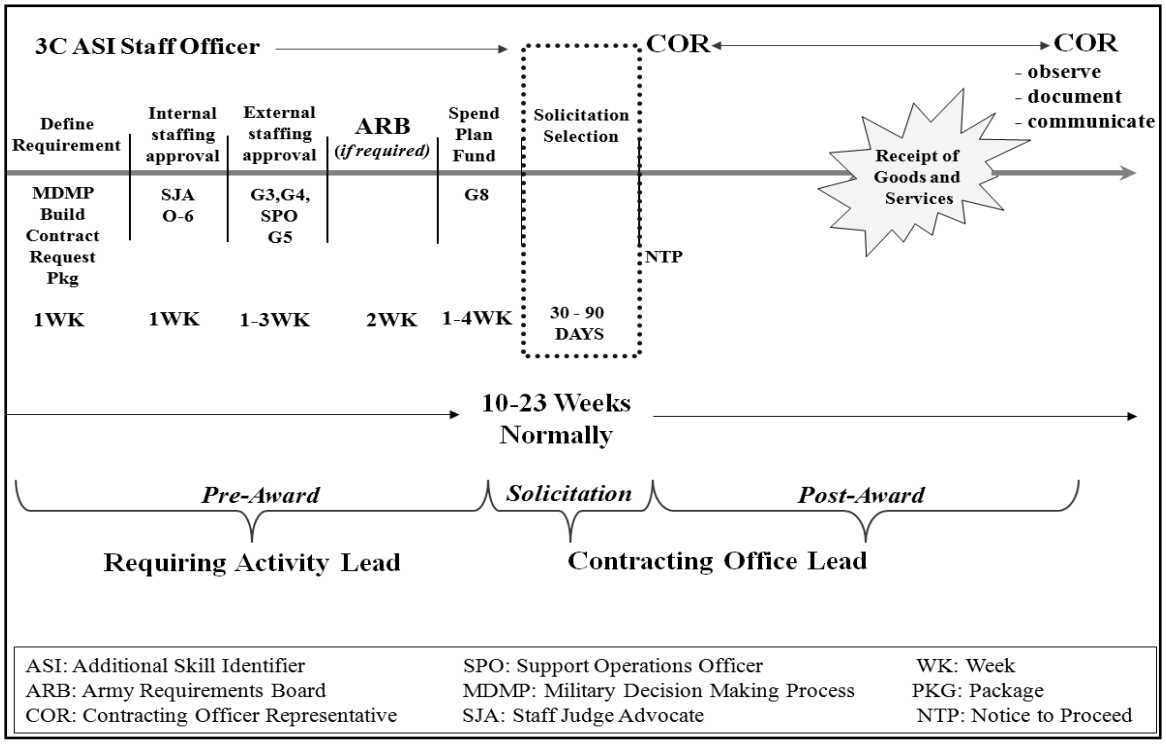

Figure L-2. Notional Contract Support Process Time Line.

d. ***Contractor management.*** Requiring activities must address any critical contractor management requirements in the overall OCS planning process. For example, the force protection and security aspects of an on-base local national contract service should be considered in COA analysis. A detailed discussion of contractor management information can be found in chapter 5 of this ATTP.

e. ***Contract limitations.*** Contracted support should not be used exclusively to purchase equipment or supplies available in the supply system. Additionally, contractors are generally prohibited from providing personal services, i.e., from being integrated into an organization to the extent that contractor employees are essentially government employees.

REQUIREMENTS DEVELOPMENT

L-7. Requirements development is the detailed work of preparing and coordinating an "acquisition ready" requirements package that includes: a funding document (usually a DA form 3953), a justification for the requirement, SOW or PWS (for a service contract) or item description (for a commodity request), IGE, and other locally required documents needed for submission of a requirements package. Additionally, requirements development involves the staffing, internal approval, and tracking of the requirements package through contract award, nomination and appointment of CORs and/or identification of a receiving official, and contractor start of work.

L-8. ***Requirements Development Considerations and Techniques.***

a. Requirements development actions will be developed IAW guidance found in the relevant CSIP, CMP, and other local command policies and procedures.

b. As soldiers, we are accustomed to mission type orders; however, contracted requirements must be written with greater specificity. Normally, service type requirements should be written in performance based language. In circumstances where it is essential the contractor perform the service in a specific manner, the SOW may contain little or no performance based language.

c. Be specific: provide details such as what, where, how much, what quality, how long, etc. Also include specific conditions such as security procedures, living conditions (for CAAF), environmental restrictions, etc. Do not include details on who should provide this support unless you have a good reason to request a specific contractor and are prepared to develop a sole source letter of justification with strong supporting rationale.

d. Use functional staff representatives, OCS planner (soldier or Army civilian with 3C ASI) and/or potential COR to assist in requirements development when feasible.

e. Ask for assistance from your 3C ASI staff officer, supporting contracting officer, or LSO.

Note: *Contractor personnel normally should not develop requirements. In certain circumstances, contractors may be utilized to assist in requirements development actions when the appropriate non-disclosure and non-competition agreements are in effect. A contractor cannot bid on requirements it developed.*

L-9. Staff Roles and Responsibilities. As discussed above, use of contracted support in military operations must be addressed early in the planning cycle. The 3C ASI staff officer (or designated staff officer or NCO if there is no 3C qualified individual on the staff) in the S-4 or support operations office will normally lead the OCS related planning effort, but specific OCS-related requirements should be developed by the appropriate functional staff officer. For example, if the request is for a signal item, the S-6 should, at a minimum, develop the item description document and develop the rest of the package ICW the 3C staff officer. No matter the staff function, it is imperative to consider both theater support and external support contract sources and their relationship to the concept of operations in tactical planning, requirements development, and integration.

L-10. Requirements Package. If, during requirements determination, it was concluded the requirement was not best filled through existing Army, joint, multinational, HNS means, or existing contract arrangements, then the development of a requirements package is required. Requiring activities are responsible for developing "acquisition ready" requirements packages that include a clear description of the requirement, market research information, appropriate command and staff approvals (to include funding), and points of contact for receipt of goods and services. Contracts will not be awarded without submission of a complete and approved requirements package. Figure 4-3 below graphically depicts a basic requirements package. An "acquisition ready" requirements package will contain, but may not be limited to, the following:

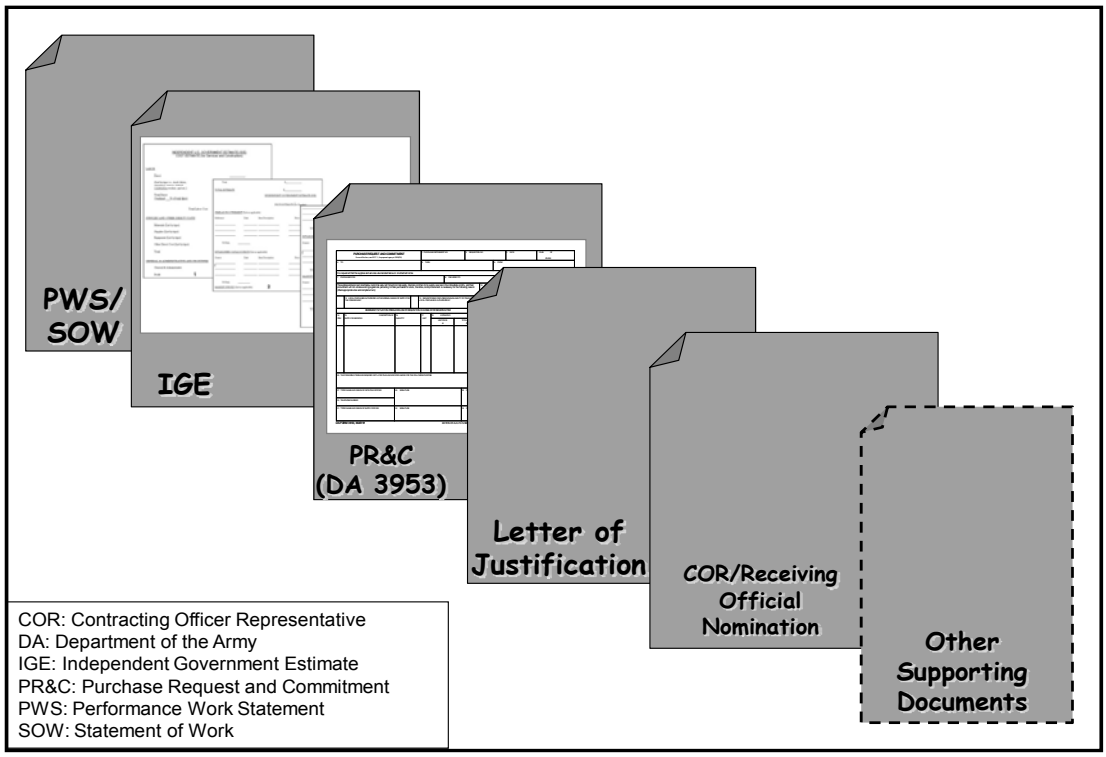

Figure L-3. Basic Requirements Package Contents.

a. ***SOW/PWS and/or item description.*** There are two major categories of acquisitions: services and supplies.

(1) A service contract is a contract that directly engages the time and effort of a contractor whose primary purpose is to perform an identifiable task rather than to furnish an end item of supply. Each service contract requirements package requires a SOW/PWS.

(2) A supply contract is for a specific commodity. Each supply contract requirements package requires a detailed item description.

(3) In some cases, the contractor may be required to provide a specific service related to the delivery of a commodity or vice versa (e.g. supplying river gravel for a parking lot to include ensuring gravel is properly spread). In these situations, the requirements package must include both a SOW/PWS and an item description.

WARNING

Do not assume anything when developing your SOW/PWS or item description. Be specific and include diagrams when applicable!

If you want access to your new guard towers, make sure you include a stair or ladder requirement in your SOW/PWS and supporting diagram.

If you want cement, it comes in various types (with gravel, without gravel; quick drying, etc.) and delivery options (50 lbs bags to pre-mix by the ton).

b. ***Independent government estimate.***

(1) All requirements packages require an IGE. The IGE is prepared by the requiring activity and is used by the commander for budget planning and the unit resource manager as a funding estimate tool. The IGE is also used by the supporting contracting office to determine a fair and reasonable cost when compared to proposals submitted by contractors.

Note: *IGE development is the responsibility of the requiring activity, not the contracting officer and especially not the contractor! A rough estimate or quote from a contractor is NOT an IGE.*

(2) Sources of IGE information:

- Market research;
- Previous contracts (provided by the local contracting office);
- Personal knowledge;
- General Services Administration (GSA) Schedule pricing guidelines; and,
- Published local labor rates.

(3) Elements of an IGE:

- **Title.** Describe project or item being purchased to include assumptions used, source of information, and requiring unit POC.
- **Labor Costs.** List labor by individual task and category, rollup task costs, and show option years or option tasks separately.
- **Material Costs.** Determine costs for all materials associated with project. Materials must include everything listed associated with SOW/PWS tasks. Include not only acquisition costs, but operation and maintenance costs for sustained efforts. Describe reasoning for any non-obvious associated materials. A spreadsheet showing quantity and cost is usual method to depict the data.
- **Other Direct Costs.** Include all other associated costs that may affect funding level of project (equipment, supplies, travel, IT support etc.). Document the source or basis of any other direct costs (ODC) estimates.
- **General and Administrative (G&A) Costs.** G&A should be applied for all non labor costs. The supporting contracting office can supply the standard G&A rate. Typically the G&A rate will be 10-15%.
- **Government-furnished property (GFP) information.** Identify property in the possession of the government that will be subsequently furnished to the contractor for performance of the contract. Government property generally falls into one of several categories: material, special tooling, test equipment, and facilities.
    - **Government furnished equipment.** Government furnished equipment (GFE) includes government acquired equipment provided to the contractor for use in support of the contract. Common GFE items includes test equipment, soldier protective items (e.g. helmet, ballistic vests), even military specification vehicles.
    - **Government furnished material.** Material is government property which may be consumed in the performance of a contract (e.g. government provided fuel support, Class IX for government furnished equipment, etc.).
    - **Government furnished facilities.** Government furnished facilities include such items as buildings, parking areas, etc. provided by the government for contractor use.

Note: *The 3C staff officer should seek technical subject matter expertise assistance in developing IGEs for complex service contract requirements.*

c. ***Requirements justification and command approval.*** All requirements packages need some form of justification letter and/or memorandum. These justification documents are directed by regulation, policy or the nature of the requirement. Two common examples include the JARB Letter of Justification and the Request for Contract Service Approval. Normally these justifications include instructions on format and content. Content of the justification may include but is not limited to:

- Rationale for the requirement;
- Operational need;
- Impacts if not funded;
- Results of market research;
- Why the requirement is needed;
- What other sources were examined to fulfill the requirement;
- Why contracting is the best solution to meet the requirement; and,
- Address any special concerns, e.g., force protection.

d. ***Funding.*** Requiring activities are responsible for coordinating funding. A military interdepartmental purchase request (MIPR) or DA Form 3953 Purchase Request and Commitment must accompany the requirements package to ensure commitment of funds and compliance with the Anti-Deficiency Act. Normally, LOGCAP funding is secured via a MIPR, while funding theater support contracts uses a DA Form 3953.

Note: *Refer to local command policies for specific contract funding documentation requirements.*

e. ***COR and receiving officials.*** As discussed above, the requiring activity (or designated supported units) must nominate qualified CORs and identify receiving officials as part of the requirements package development process. Commanders enhance the quality of the contract support they receive by nominating soldiers to be CORs who have expertise in the services the contract is to provide.

WARNING

Commanders must ensure that they comply with existing HQDA COR pre-deployment training requirements!

(1) ***COR nomination and qualification certification.*** The requiring activity or designated supported unit is required to provide a trained COR for every service contract. The COR is a soldier or Army civilian, nominated by the requiring activity or designated supported unit and appointed in writing by the contracting officer. The COR is responsible to monitor contract performance, conduct contract surveillance, and perform other duties as specified by their appointment letter. The unit nominating the COR must consider the technical aspects, monitoring frequency, and monetary value of the requirement to ensure the COR's subject matter expertise and availability are commensurate to the requirement.

WARNING

Contracting officers will not award service or minor construction contracts until they are assured that the nominated COR has the requisite COR training and technical experience. If the requiring activity does not have soldiers with the appropriate subject matter expertise (e.g. a construction contract COR must be trained and certified in construction/building code matters), this matter must be raised through the chain-of-command as soon as possible (ASAP)!

Additional COR information can be found in GTA 90-01-016, *The Deployed COR* Smartcard.

(2) ***Receiving official designations.*** Requiring activities are required by policy to provide a soldier or Army civilian to act as a receiving official for the delivery of contracted commodities. The receiving official has the responsibility to inspect the item at the point of delivery and may, if necessary, reject the item if it does not meet the contract specifications, terms and conditions. If the item is rejected, the receiving official must immediately notify the contracting officer. After acceptance, the receiving official must certify receipt of supplies or services for payment purposes by completing a DD Form 250, *Material Inspection and Receiving Report* and any required performance assessments. Requiring activities should ensure the receiving official has the skills to perform the duties as receiving official and is made available to perform these duties.

f. ***Other supporting documentation.*** Federal, DOD, and Army regulation, policy or the nature of the requirement may require additional documentation submission to process. Some examples of additional supporting documents include:

- Justification and approval letter for limiting full and open competition,
- An acquisition strategy or plan, and,
- A draft QASP (for a service contract).

Many of these documents require specific training and experience to develop. Close coordination with your supporting contracting office and functional experts are integral for successful completion and approval of supporting documentation and ultimately the requirement's package content.

L-11. Requirements Package Processing. All requirements packages for contracted support will be processed IAW command policy and procedures. These packages will also be submitted to the appropriate ARB as directed.

a. ***Command staffing and approval.*** Once the requirements package is completed, the 3C ASI staff officer reviews the package to ensure it is complete IAW local command policy and requirements. The package should then be reviewed by the appropriate staff, approved by the commander, and submitted to higher headquarters, if required, for staffing and approval IAW these command policies. Some packages may require submission to an ARB or other OCS related board for final approval and prioritization. Depending on local command policies and procedures, requirements package staffing and approval can take a considerable amount of time; thus, requirements package staffing and approval timelines must be considered when estimating the overall time it takes to plan and execute contracted support.

b. ***Acquisition review board.*** The role of the ARB is to approve and prioritize designated high-value and/or high-visibility requirements and determine the proper source of support for these requirements. The CSIP and local policies should dictate requirements needing ARB approval and the specifics of the process. The 3C ASI staff should submit accurate requirements packages to the ARB and monitor the status through the process. Figure 4-4 illustrates the basic ARB process. When the package is approved it is submitted to the supporting contracting organization to be placed under contract.

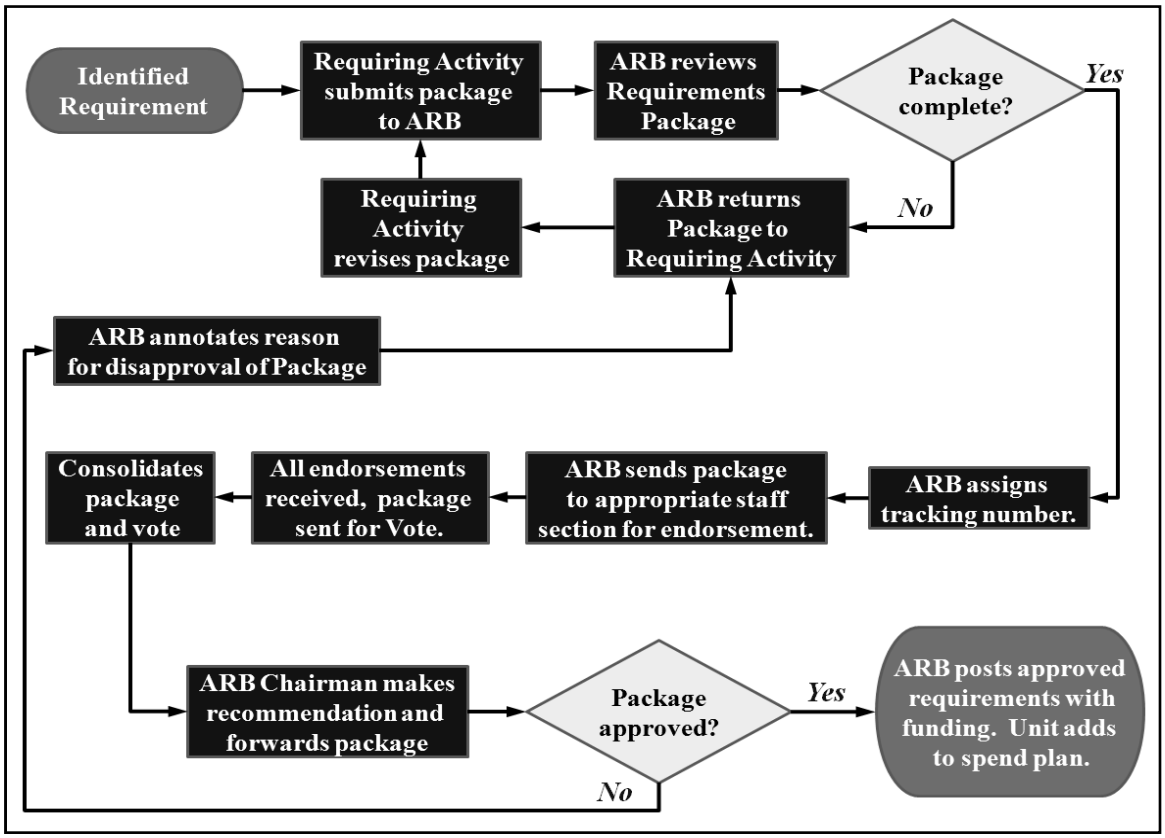

Figure L- 4. Acquisition Review Board process.

Note: *Many common and/or low cost commodity and services will not be required to go through a formal ARB or JARB approval process. It's solely based on simplified acquisition threshold or set dollar amount.*

c. ***Tracking.*** One of the most important functions of the 3C ASI staff is to monitor and track contract requirements. No matter the method, tracking the requirements through the staffing, approval, and ARB process provides valuable information associated with the status of current packages and overall processing times that will help determine review of the requirement once they are approved.

Note: *Ensure that you aggressively track the progress of your requirements package through final command and funding approval. Requirements packages have been known to get "stuck" in this process.*

POST CONTRACT AWARD ACTIONS

L-12. The requiring activity and/or supported unit have a critically important role to play in the post contract award process. The 3C staff officer, unit CORs and receiving officials are key players in this process.

Note: *The primary focus in post award actions is ensuring we get what we are paying for at a reasonable cost or fair market value!*

L-13. Tracking Contract Support. The use of contracted support and its complexity in current operations illustrates the need for detailed contract support monitoring and management by the requiring activity or supported unit. In addition to tracking requirements through the staffing and approval process, the 3C ASI and functional area staff should track and monitor the contract(s) through performance or delivery and close out. The staff should develop and use a system and local procedures for the monitoring and review of contracted requirements.

L-14. COR Monitoring and Tracking. Requiring activities and designated support units must track CORs for all active service contracts and requests for contract support. Additionally, the 3C ASI staff should track personnel trained to be CORs for potential nomination for future contract support requests. Monitoring the appointed CORs planned rotation allows requiring activities to ensure technically competent, trained personnel are available and in place to provide seamless COR coverage. A list of trained CORs with associated technical skills provides the pool of personnel to fill planned and unplanned vacancies.

Note: *At a minimum, the following data fields should be included in the 3C staff officer contract or COR tracking spread sheet: tracking #; requisition number; date package submitted; date package approved; package processing time; contract #; contracting officer contact information; the contractor's name; service or item description; contract cost; period of performance or date of delivery; place of performance or delivery; the COR's name, unit and rotation date or the receiving official's name and unit; and, remarks.*

L-15. Performance Evaluation Boards. While not required for fixed price contracts, performance evaluation boards (PEBs) are used as a formal mechanism to provide performance feedback to the contractor for award-fee contracts, identifying strengths, areas for improvement, and areas of emphasis in a uniform, fair, and consistent manner. PEBs are most commonly associated with LOGCAP support. Requiring activities, through their CORs, should be involved in this process, since the service the contractor is performing supports the mission of the unit. The roles and responsibilities within the PEB process include:

a. ***DCMA or other designated quality assurance representatives (QARs)*** prepare schedule and quality technical evaluation IAW documented audits and findings (traceable to SOW or PWS requirements) as well as brief PEB, as required.

b. ***CORs*** provide schedules and quality technical evaluation summaries based on documented audits and inspections to both the unit chain-of-command and through the QAR to the contracting officer and brief PEB, as required.

Note: *Unit CORs submit PEB comments to both the on-site QAR and to the unit's chain of command.*

c. ***Property Administrators*** provide evaluation of Contractor Property Control System.

d. ***Contractors*** provide written self-assessment of accomplishments (read-ahead package) and presents summary of accomplishments at PEB.

L-16. Award Fee Board. An award fee provides a pool of dollars that can be earned based upon the government's evaluation of the contractor's performance in various performance areas within established time periods. The intent of an award-fee arrangement is to incentivize a contractor to improve performance based upon the government's assessment of the contractor's progress. Most theater support contracts do not include awards fees; however, the most commonly known external support contract sustaining deployed Army forces, LOGCAP, currently uses an award-fee structure. Evaluations for award fees are based upon impartial monitoring of the contractor's performance against the evaluation criteria specified in the contract. The award fee evaluation team includes a fee determining official, an award fee

review board (AFRB), and performance monitors (i.e. CORs). Commands receiving the services from award fee contracts like LOGCAP can contribute to the evaluation process through input to performance monitors or to the AFRB.

Note: *The most effective award fee board input, whether positive or negative is documented and provided frequently during the period of performance rather than only at the time of an award fee determination.*

L-17. Unauthorized Commitments (UAC) and Ratification. With the limited exception of special authorizations such as the Commander's Emergency Response Program (CERP) (paragraph 4-20) and field ordering officers (FOO) (paragraph 4-21), only warranted contracting officers have the authority to contract for and/or to legally obligate the government for the purchase of supplies or services with federal funds. To procure any supply or service is to process a request through the resource manager and the contracting officer so they can execute the buy in accordance with regulations. UACs are agreements, implicit or implied, made by government personnel (commanders, staff, etc.) to purchase items or services with federal funds; these agreements aren't binding because the government representative who made them lacked the authority to enter into such agreements on behalf of the government. UACs can also occur when a COR or government official exceed their authority under existing contracts. When a COR exceeds their delegated authority or a government official commits a UAC a claim against the Government may result. Examples of situations which could lead to UACs include:

- A COR tells the contractor that the product would be better if the contractor used a different material. A UAC may result if the contractor takes the COR's statement to be direction and substitutes the new material for the old. To avoid an unauthorized commitment, the COR should not discuss changes with the contractor and only submit a recommendation to the contracting officer to modify the contract.
- The unit (the government) continues to conduct business as usual with a contractor after the contract lapses (i.e., it has not been formally renewed or extended). In this case, the failure of the COR to notify the contracting officer in time to renew the contract or to promptly notify the contractor of the situation could be an unauthorized commitment.
- A camp mayor tells a contractor to correct electrical problems on a particular facility. If the electrical work is not part of the contractor's current support services scope of work, it could result in an increase to the cost of performance, thus a potential UAC.
- A battalion commander properly contracts for the purchase of air conditioners for Soldiers' tents in the life support area. When the vendor delivers the correct quantity and type of air conditioners, the battalion commander verbally directs him to deliver the same quantity and type air conditioners to a sister battalion. The following morning the air conditioners are delivered and accepted by the government, resulting in an UAC.

a. In general, to avoid an UAC, unit members and CORs must avoid any of the following actions:

(1) Making any commitment or promise relating to award of contracts or any representation that would be construed as such a commitment.
(2) Issuing instructions to the contractor to start, change, or stop work.
(3) Encouraging the contractor by words, actions or a failure to act to undertake new work or an extension of existing work beyond the stated contract period.
(4) Interfering with the contractor's management prerogatives with its employees, such as "supervising" or otherwise directing the work efforts of an employee.
(5) Accepting products or services not required by the contract.
(6) Unless directed by the contracting officer, authorizing a contractor to:
- Obtain property for use under a contract; or,
- Use government property allocated to one contract in the performance of another contract.

Note: *If you observe a contractor performing a clearly unsafe act, you can immediately make an on-the-spot correction without causing a UAC, but notify the COR or contracting officer ASAP!*

b. UACs place the government in an undesirable position and can create bad will with the company that delivered the supplies/services and with the local population particularly when in a contingency environment.

c. UACs require a ratification process and successful ratification is not automatic. Only the HCA or his designated representative may ratify an unauthorized commitment, and only when the following conditions are met:

(1) Supplies or services have been provided to and accepted by the government, or the government otherwise has obtained or will obtain a benefit resulting from performance of the unauthorized commitment.
(2) The ratifying official has the authority to enter into a contractual commitment.
(3) The resulting contract would otherwise have been proper if made by an appropriate contracting officer.
(4) The contracting officer reviewing the unauthorized commitment determines the price to be fair and reasonable.
(5) The contracting officer recommends payment and legal counsel concurs in the recommendation, unless agency procedures expressly do not require such concurrence.
(6) Funds are available and were available at the time the unauthorized commitment was made.
(7) The ratification is in accordance with any other limitations prescribed under agency procedures.

If these conditions are not met, the ratification authority may determine the unauthorized commitment cannot be ratified. The government may not take responsibility for the act and the contractor may hold the individual who committed the act personally and financially liable.

d. Ratification procedures vary based on the command and situation, but normally a ratification package includes the following:

- A report on the circumstances surrounding the unauthorized commitment;
- A statement from the command on corrective actions taken to prevent a recurrence of the event; and,
- A description of disciplinary action taken or an explanation why no action was taken against the individual responsible for the UAC.

RELIEF IN PLACE/TRANSFER OF AUTHORITY

L-18. Relief in place/transfer of authority (RIP/TOA) is the sequence of events where one military unit replaces another within the AO. A relief in place is a tactical enabling operation where, by the direction of higher authority, all or part of a unit is replaced in an area by an incoming unit. During stability operations and civil support operations, a relief in place is often referred to as a transfer of authority. During a TOA, in addition to the normal responsibilities of a relief, commanders must also deal with civilians or coalition partners. Planning for the TOA begins as soon as a unit is notified they will be deploying in replacement of a currently deployed organization.

Note: *Is your unit replacing another deployed unit in a specific operation? If so, you need to ensure that OCS is part of your relief in place or transfer of authority plan.*

L-19. OCS RIP/TOA is important. It should be an integral part of the RIP/TOA process. Though not all operations have RIP/TOA opportunities, commanders and staffs rotating into an AO should take

advantage of what has already been done (if successful) to mitigate the normal problems associated with RIP/TOA, especially when it concerns OCS. Incoming units need to collect the following from the outgoing unit:

a. References (CSIP and CMP extracts, OCS-related FRAGOs, command policies andr procedure documents, funding and resource management information, etc.).

b. Copy of existing contracts, projected contract requirements, and COR requirements.

c. Local command COR training policies and procedures.

d. Any on-going OCS planning and/or requirements development documents.

e. Information (names, location, support relationship, etc.) of supporting contracting unit or organization and TLF support personnel.

f. Local national contract worker base access and security information.

g. FOO and paying agent related files.

SPECIAL AUTHORITIES AND PROGRAMS

L-20. Special Authorities. Special programs similar to OCS may be authorized to provide rapid support to local reconstruction and humanitarian needs. Authorization for these special authorities must be formally requested by the operational commander and must receive congressional approval prior to implementation. The Commander's Emergency Response Program (CERP), as seen in current operations in Iraq and Afghanistan, is an example of a special program established through specific congressional authority. CERP enables area commanders to respond to urgent humanitarian relief and reconstruction requirements that are of an immediate benefit to local nationals within their AOs. CERP is considered a special authority because Congress has exempted CERP projects from normal statutory fiscal and contracting controls; however, these exemptions do not exempt commanders from being good stewards of US Government's funds used for CERP.

WARNING

Special programs similar to contract support:

- **Require special congressional authorization to implement.**
- **Must be coordinated with local contracting official in order to prevent duplication of the local contract support effort.**
- **Are ripe for potential fraud, waste and abuse.**

Require significant additional training and close commander oversight.

For more information regarding CERP see GTA 90-01-017.

L-21. Field Ordering Officers. The role of the FOO is to procure authorized, urgently needed supplies and/or services from local sources during deployments because normal supply channels are either not available or not capable of providing them in a timely manner. FOOs derive their purchasing authority from a warranted contracting officer.

L-22. FOOs may make purchases up to the established micro-purchase threshold. FOOs are also authorized to purchase supplies or non-personal services immediately available; and one delivery/one payment purchases. As with any purchase, FOOs cannot split requirements to meet threshold levels.

For more information regarding FOOs see FAR Part 13; DFARS Part 213; and AFARS Part 5113.